

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF SOUTH CAROLINA  
SPARTANBURG DIVISION**

Jay Easler, individually and as class  
representative of others similarly situated,

Plaintiff,

v.

Hoechst Celanese Corporation , HNA  
Holdings, Inc., CNA Holdings, Inc.,  
Hercules, Inc., Ashland, Inc., Hyston Fibers,  
Inc., Messer Greishiem, Inc., Arteva  
Specialties S.a.r.l d/b/a/ “KoSa”, Johns  
Manville Corporation, INVISTA S.a.r.l d/b/a  
“Invista”, Teijin Monofilament U.S., Inc.,  
Teijin Holdings USA, Inc., Auriga Polymers  
Inc., Indorama Ventures USA, Inc.,

Defendants.

**COMPLAINT**

**(Class Action)**

**INTRODUCTION**

**Pursuant to 42 U.S.C.A. § 6972**, Jay Easler brings suit against the above-styled responsible parties, seeking relief from health and environmental dangers posed by groundwater and surface water contamination emanating from the “Hoechst-Celanese” manufacturing plant in the community of Cannon’s Campground, South Carolina. The Plaintiff requests the court utilize its powers under Section 6972(a) to: 1) restrain the Defendants listed above from engaging in any activities constituting an imminent and substantial endangerment to the health or the environment of Cannon’s Campground; 2) order the Defendants take all necessary remedial actions to delineate and treat the existing contamination and to prevent any further migration beneath private property; and 3) apply any appropriate civil penalties.

For over 40 years, numerous corporate entities have polluted the groundwater of the Cannon's Campground community and the surface water of the nearby Pacolet River and its tributary creeks by improperly handling and disposing hazardous chemicals that were either components or by-products of the polyester manufacturing process conducted at what is commonly referred to as the "Hoechst-Celanese" manufacturing plant and its neighboring facilities. The extent of the pollution poses an imminent and substantial endangerment to the health of the members of the community and to the environment itself and was carried out—and is still being carried out—by the owners of the plant in violation of federal and South Carolina law.

Only recently have the facts of this pollution and its threat to the community and to the environment begun to surface. As the result of the tireless efforts of a handful of concerned citizens, over a quarter century of secretive and failed remediation efforts are now being revealed. The Plaintiff is one of dozens of concerned citizens of Cannon's Campground that have previously served notice of these violations upon the Defendants and have received no response whatsoever. The Plaintiff, on behalf of his family, friends, and neighbors living in the Cannon's Campground community, now requests the District Court enforce the provisions of the Resource Conservation and Recovery Act in order to ensure health of the community and its environment.

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## **I. The Site of the Contamination**

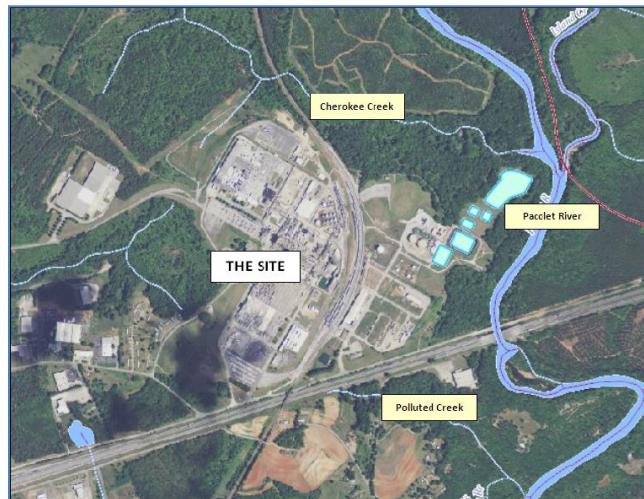
1. The source of the contamination at issue (hereinafter “the Site”) is located in Spartanburg County, South Carolina in the northwest quadrant of the intersection of the Pacolet River and Interstate 85. The Site is located approximately four miles to the northwest of Cowpens, South Carolina.

2. The Site is appurtenant to three bodies of water:

a. **Cherokee Creek**—Cherokee Creek is a tributary of the Pacolet River, bounding the Site to the north.

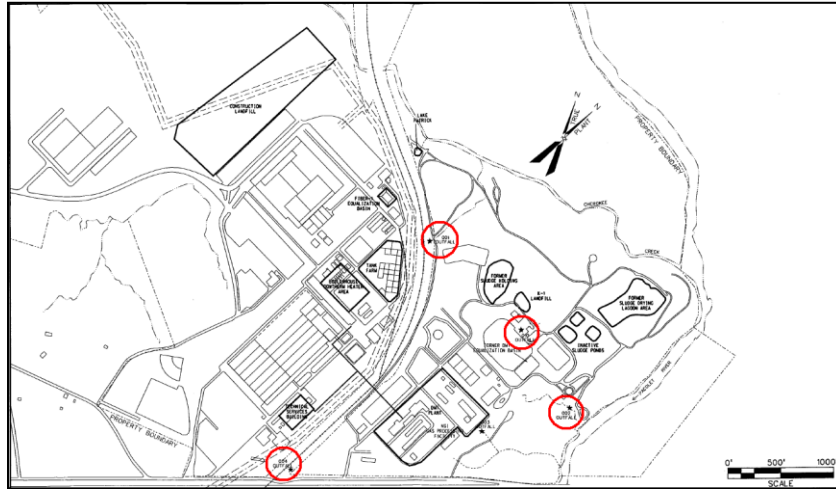
b. **Pacolet River**—Pacolet River is a navigable body of water, bounding the Site to the east.

c. **Polluted Creek**—“Polluted Creek” is an unnamed tributary of the Pacolet River, believed to emanate from a natural spring on the Site itself and flowing roughly to the southeast, beneath Interstate 85, before joining the Pacolet River approximately several hundred yards south of Interstate 85. “Polluted Creek” does not possess an official name, but has been referred to as such by some local residents due to its appearance and odor over the past several decades.



3. Discharge of wastewater, stormwater, and condensate from the Celanese Plant to these three bodies of water is governed by the terms of NPDES permit SC0002798. The following

point sources or “outfalls” are regulated by this permit (or were regulated during the time in question): Outfall 001; Outfall 002; Outfall 004; and Outfall 010. The precise locations of the permitted outfalls are circled below.



- a. **Outfall 001:** this outfall is comprised of a sump pit chamber that collects utility water and stormwater run-off from the majority of the Site's operations. Discharges are diverted to Cherokee Creek via a drainage ditch running roughly to the northwest.
- b. **Outfall 002:** discharges the effluent from the Site's wastewater treatment plant directly into the Pacolet River.
- c. **Outfall 004:** originates at an underground spring at the southern edge of the Site. Also discharges non-contact utility water, stormwater run-off, and rinsing waters used in cleaning empty railcars of plastic chips.
- d. **Outfall 010:** no longer regulated by the NPDES permit. Regulated for approximately 10 years while a 1,4-Dioxane distillation column was in use on the Site. Discharges are diverted to Cherokee Creek via a drainage ditch.

In compliance with the National Pollution Discharge Elimination System, NPDES Permit #SC0002798 required the operators of the Site to periodically monitor the levels of contaminants being discharged into Cherokee Creek, Polluted Creek, and the Pacolet River.

## **II. Jurisdiction and Venue: The Plaintiff and Defendants**

4. **Jay Easler** owns the residence located at 616 Brucker Road, Spartanburg, South Carolina, an address in the Cannon's Campground community.

5. Industrial activities began on the Site in 1966 when **Hercules, Inc.** constructed a dimethyl terephthalate (DMT) production facility on the southeastern part of the property. Hercules, Inc. was acquired by **Ashland, Inc.** on November 13, 2008.

6. On May 22, 1970, Hercules, Inc. sold a portion of the Site to **Hystron Fibers, Inc.**

7. In the early 1970s, **American Hoechst Corporation** purchased the Site and constructed a fiber production area west of the DMT facility. American Hoechst ceased on-Site production of DMT in 1978 and partially dismantled the DMT facility.

8. In 1986, **Messer Greishiem, Inc.**, a wholly owned subsidiary of **Hoechst AG** (the European parent corporation of American Hoechst Corporation and its descendents), leased an area in the southeastern part of the decommissioned DMT plant and began operating.

9. In 1987, American Hoechst merged with Celanese Corporation to form the Hoechst Celanese Corporation. The Site then became part of the **Hoechst Celanese Corporation**.

10. In 1998, **Arteva Specialties S.a.r.l** purchased the Site and operated it under the name "**KoSa**."

11. Upon information and belief, Hoechst Celanese retained at least some responsibility for environmental matters existing at the Site on the date of the 1998 sale. In October of 1999, **CNA Holdings, Inc.** was formed to manage the retained environmental matters on closed and divested

properties formerly owned by Hoechst Celanese. CNA Holdings briefly was named “**HNA Holdings, Inc.**” and may be referred to as such in documents related to this litigation.

12. During or about 2000, KoSa sold a portion of the Site to **Johns Manville Corporation**. Johns Manville discharges wastewater into the Site’s wastewater treatment plant to the present day.

13. In 2004, KoSa merged with **INVISTA S.a.r.l** and the site operated under the name “**INVISTA.**”

14. **Teijin Monofilament U.S., Inc.**, a wholly-owned subsidiary of **Teijin Holdings USA, Inc.**, began operating polyester monofilament operations during or about 2005. Teijin Monofilament U.S. discharges wastewater into the Site’s wastewater treatment plant. Records indicate that Teijin may have ceased production on-Site in January of 2010.

15. On February 28, 2011, INVISTA s.a.r.l sold the Site to **Auriga Polymers, Inc.**, a wholly-owned subsidiary of **Indorama Ventures USA, Inc.** Indorama currently is responsible for the Site’s on-going duties under the Clean Water Act and all applicable permits.

16. The District Court possesses subject matter jurisdiction over this case pursuant to 42 U.S.C.A. § 6972, which awards jurisdiction of Resource Conservation and Recovery Act citizen suits to “the district court for the district in which the alleged violation occurred or in the District Court of the District of Columbia.” 42 U.S.C.A. § 6972(a).

17. The District Court for the District of South Carolina possesses personal jurisdiction over each one of the above-listed Defendants as each one of the Defendants has purposefully directed activity towards the State of South Carolina in the form of owning and/or operating businesses at the “Hoechst-Celanese” site in Spartanburg County, South Carolina.

18. The Spartanburg Division of the District Court for the District of South Carolina is the appropriate venue for this action, pursuant to Local Civil Rule 3.01(A)(1), because a substantial part of the events or omissions giving rise to this claim occurred within the Spartanburg Division and the corporate defendants do or did business related to the allegations contained herein within the Spartanburg Division.

19. The predicate notice of the RCRA violations complained of herein has been served upon all required parties as required by 42 U.S.C.A. § 6972(b)(2)(A) and ninety days have expired since the service of this notice. No RCRA prosecutions, CERCLA prosecutions, CERCLA removal actions, CERCLA remedial investigations and feasibility studies, or CERCLA court/administrative orders have been obtained as envisioned by 42 U.S.C.A. § 6972(b)(2)(B) and (b)(2)(C). To the extent that any such actions, prosecutions, or investigations have occurred or are occurring, such actions have not been pursued with the diligence required by 42 U.S.C.A. § 6972 to divest the Plaintiff of his ability to bring this suit.

### **III. Non-Party Entities Upon Whom This Complaint is Served**

20. Pursuant to 42 U.S.C.A. § 6972(b)(2)(F), a copy of this complaint is served upon the Attorney General of the United States, the Administrator of the Environmental Protection Agency, and the Region 4 Regional Administrator of the Environmental Protection Agency.

### **IV. History of Pollution and Remediation Efforts**

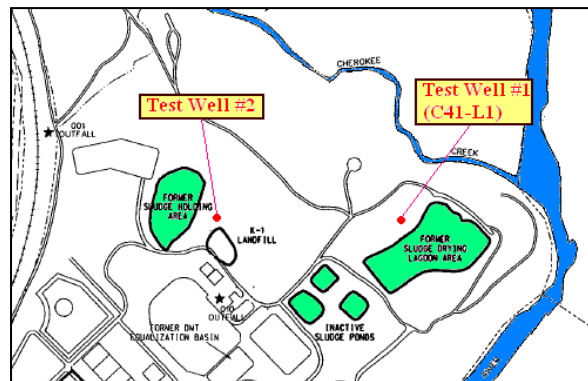
21. On September 30, 1965, Hercules Powder Company first sought permission to dispose of industrial wastewater from the Site into the Pacolet River. Hercules described the wastewater simply as “50 gpm waste plus 150 gpm dilution water.”

22. Two years later, on July 24, 1967, Hystron Fibers, Inc. sought permission to treat industrial waste “in an activated sludge system with pH control and nutrient feed.”

23. By April 13, 1973, Hoechst Fibers, Inc. petitioned the State of South Carolina to permit it to construct and operate a waste treatment facility by which “excess sludge goes to land spray disposal.”

24. In July of 1975, the “sludge system” utilized in the wastewater treatment process at the Site included use of three “sludge ponds,” one “sludge drying lagoon” covering five acres, and one “sludge storage area” covering approximately three acres. All of these treatment areas were unlined.

25. Hoechst conducted groundwater monitoring of its site as early as July of 1975. As of that date, two test wells were operable on the Hoechst site: Test Well No. 1 (also known as “C41-L1”), which was drilled immediately to the west of the sludge drying area; and Test Well No. 2, which was drilled immediately to the east of the sludge storage area. Historical results of the monitoring from this time period, however, have not been located.



**a. Discovery of Groundwater and Surface Water Contamination (1982-1991)**

26. DHEC records of Site groundwater contamination monitoring begin in November of 1982. At that time, Hoechst detected levels of “phenolics” in its monitoring wells and continued to measure levels of these contaminants every three months thereafter. The “phenolics” monitored by Hoechst were phenolic compounds originating in the on-site chemistry laboratory used to dissolve polyester samples during the quality control analysis of the polyester product.

The phenolic compounds were, according to Hoechst, “a mixture of phenol and tetrachloromethane.”

27. By August 9, 1983, Hoechst sought to reduce the quantity of wastewater sludge in the unlined five acre sludge drying lagoon by spreading it over existing grassed areas at the Site as soil dressing. Hoechst selected a one acre test plot to evaluate potential sludge application methods and potential environmental effects from sludge disposal for a period of one year.

28. On February 3, 1984, DHEC approved the operation of the proposed sludge disposal test plot, but recommended the construction of a groundwater monitoring well downgradient from the storage lagoon to determine if existing sludge storage practices impacted the groundwater. Upon information and belief, no such downgradient monitoring well was constructed.

29. On November 5, 1985, DHEC demanded the attention of Hoechst to what it described as “an increasing number of occurrences at your facility,” including a spill of 1000 gallons of polyethylene glycol. This is the earliest located record of chemical spills at the facility and forms the first instance of a continuing pattern of reported spills over the next twenty-five years.

30. On May 13, 1986, Hoechst Fibers, Inc. amended this treatment process to provide for “application of approximately 4.5 tons per year of industrial sludge from the on-site wastewater treatment plant which will be disposed of on a dedicated land site on Hoechst Fibers’ property.”

31. Records show that, as early as December of 1987, the newly-merged Hoechst-Celanese corporation (hereinafter referred to as “Hoechst-Celanese”) began detecting violations of NPDES Permit #SC0002798 both as to Outfall #1 (discharging into Cherokee Creek) and Outfall #2 (discharging into the Pacolet River). Specifically, Hoechst-Celanese recorded an “unusually high BOD level” (“Biochemical Oxygen Demand”) in waters emanating from Outfall #1 and Outfall #2. Also as to Outfall #2, Hoechst-Celanese reported that “floc” generated in its waste treatment

plant had been improperly discharged into the Pacolet River in violation of the Permit. In order to address these problems, Hoechst-Celanese installed three 2-ton chlorine cylinders to the plant's wastewater treatment facility to resolve issues with fecal coliform bacteria.

32. By September 19, 1988, the existing monitoring wells began to show elevated levels of hazardous chemicals in the drinking water beneath the Site. DHEC warned Hoechst-Celanese of the threat of groundwater degradation as well as the possibility of necessary remediation.

33. Follow-up testing conducted on November 21, 1988 again revealed elevated levels of hazardous chemicals in the groundwater.

34. On March 31, 1989, Hoechst-Celanese violated the terms and conditions of NPDES Permit No. SC0002798, resulting in ethylene glycol being released via Outfall 001 and into Cherokee Creek.

35. By July 7, 1989, Hoechst-Celanese informed DHEC that the fecal coliform levels in Outfall 002 had been controlled and thus Hoechst intended to cease the chlorination of the wastewater flowing from the Site to the Pacolet River.

36. Four weeks later—August 3, 1989—DHEC notified Hoechst-Celanese that its NPDES permit was scheduled to expire in May of 1990 and an application for renewal would need to be completed by November of 1989. In response, Celanese submitted its application on October 31, 1989.

37. On February 6, 1990, while its NPDES permit renewal application was pending, Hoechst-Celanese self-reported “at least two” violations of the existing permit pertaining to releases of 1,4-Dioxane in the Pacolet River during the previous January. The company further reported that it was releasing approximately 11,200 pounds of 1,4-Dioxane, the “suspected carcinogen,” into the Pacolet River each year (about 31 pounds per day) and stated that “an

investigation will be carried out to try to determine the cause of the sudden increase in dioxane being released to the river, hopefully leading to a reduction in the amount released.”

38. Despite Hoechst-Celanese’s “investigation,” discharge of the 1,4-Dioxane carcinogen into the Pacolet River remained at levels well-above 100 pounds per day throughout February and March of 1990 (an average of 144.5 pounds per day), finally peaking at 243 pounds per day on March 28, 1990. As a result of this extreme spike in discharge levels, from January 24 until March 28 of 1990, the plant was averaging discharges of the carcinogen 1,4-Dioxane at the startling rate of 52,743 pounds per year—nearly five times the rate previously reported to DHEC. Simultaneously, other pollutants were also being unlawfully discharged into the Pacolet River, including six gallons of ethylene glycol discharged via Outfall 001 on April 19, 1990. Also, on April 10, 1990, waters discharged from Outfall 004 and in Polluted Creek received acidic pH measurements of 5.9.

39. On June 26, 1990, in response to the growing crisis at the Site pertaining to discharge of 1,4-Dioxane into the neighboring creeks and rivers, DHEC imposed interim limits upon Hoechst-Celanese’s discharge of the carcinogen to be enforced beginning July 1, 1991, one year in the future. The new limits imposed upon the company would constitute a 60 percent reduction of Hoechst-Celanese’s average daily discharge of 1,4-Dioxane by July of 1991 and an 88.5 percent reduction by July of 1992. In response, Hoechst-Celanese expressed optimism about its ability to meet the July 1991 goal, but concern regarding the required limits of 1,4-Dioxane discharge beginning July 1992, stating that “it will be very much more difficult for us to meet the final limits.”.

40. On July 23, 1990, Westinghouse, employed by Hoechst-Celanese, released its “Phase I and IA Site Assessment Status Report.” The Report revealed substantial groundwater contamination beneath the Site.

Based on the initial site assessment analyses groundwater and soil has been degraded at all locations sampled. A plan to further investigate both the inactive DMT plant as well as the active plant site is recommended. Figure 4-1 and Plate 1 illustrate proposed locations of Phase II activities.

Westinghouse recommended that “at least 14 shallow monitoring wells be installed, and a monitoring program instituted.”

41. On July 26, 1990, DHEC officials met with Hoechst-Celanese personnel to inspect the wastewater treatment of the plant. DHEC noted that, despite its continued entreaties, Hoechst-Celanese continued to fail to monitor possible groundwater contamination and had added no monitoring wells in addition to the two wells in existence since 1975.

More groundwater monitoring wells are required. The five-acre dewatering lagoon has only one monitoring well. The two-acre disposal area also has only one monitoring well, and the disposal site is between the well and the Pacolet River. An assessment is needed to see if groundwater has been impacted.

The inspection also revealed that the “three-acre storage area” was being operated as a site for ultimate sludge disposal in violation of both NPDES Permit No. SC0002798 and Construction Permit No. 11,939. DHEC demanded immediate closure of this “sludge storage area.”

42. On August 29, 1990, DHEC informed Hoechst-Celanese that it was approving the plant’s application for renewal of NPDES Permit #SC0002798, though it noted that Hoechst’s proposed levels of chloroform discharge exceeded approved limits. As such, while the approval process continued, the company was placed under a consent order to revise its treatment processes to

lower the chloroform discharge levels by April 1, 1991. Over the ensuing months, however, the parties continued to negotiate the final terms of the NPDES permit.

43. In response to the increasing concerns over groundwater contamination, on September 7, 1990, Hoechst-Celanese presented a proposal crafted by Westinghouse Environmental and Geotechnical Services, Inc. to drill a “monitor well network” of twenty-seven wells to be drilled upon the Site in addition to the two existing monitoring wells. In addition, Hoechst sought to install seven piezometers to study the hydrogeology of the Site, including primarily the flow of groundwater beneath the Site.

44. On October 1, 1990, DHEC and Hoechst-Celanese officials met to discuss the results of the groundwater testing and Celanese’s proposals as to how to proceed with further investigation and possible remediation of existing problems. The meeting included Bob Knauss (DHEC employee), Tom Knight (DHEC employee), Bruce Bowyer (Hoechst-Celanese employee), and Jim Pullen (Hoechst-Celanese employee). The primary conclusions of the meeting were that Hoechst-Celanese’s in-house analysis confirmed groundwater contamination beneath the Site and that Celanese intended to accelerate further investigation and monitoring.

The results of a soil gas survey and hydropunch groundwater quality investigation initiated by the facility and completed by Westinghouse Environmental were presented and discussed. This information indicated probable groundwater quality contamination by various organic compounds.

The facility is proposing to install numerous groundwater quality monitor wells to confirm degradation, and monitor groundwater quality.

45. Also during the October 1, 1990 meeting, DHEC and Celanese officials first addressed the possibility that the confirmed groundwater degradation could affect private drinking wells in surrounding areas.

No water supply wells are located on site. Monitor wells are being proposed between the site and a nearby public supply well at a trailer park.

The “nearby public supply well at a trailer park” was located at a trailer park owned by Ronald Whitlock located immediately across Hoechst Drive from the Site (outlined below).



The trailer park contained—and continues to contain—approximately 19 mobile homes, all of which were then supplied with water from the public supply well located in the trailer park. Despite the concerns of the proximity of the Site to the public supply well, neither Hoechst-Celanese nor DHEC provided notice of the threat of groundwater contamination to Mr. Whitlock or the residents of the Whitlock Trailer Park. Nevertheless, DHEC approved the construction of the company’s “monitor well network” and the drilling, sampling, testing of water samples began in November of 1990.

46. On December 3, 1990, Hoechst-Celanese updated its 1,4-Dioxane monitoring measurements, including results of 48 individual samplings taken since March 28, 1990. Of these 48 samplings, Celanese reported that 27 revealed 1,4-Dioxane discharge levels in excess of the 60 pounds per day prescribed by DHEC, including a November 15, 1990 measurement of 127 pounds per day.

47. One week later—December 10, 1990—DHEC composed an internal memorandum pertaining to the toxicity of 1,4-Dioxane and treatment methods applied to the chemical.

2. For the same reasoning contained in my memorandum of November 15, 1990, limiting 1,4-dioxane concentrations to a maximum of 30 mcg/l should be protective of human health for effects other than cancer. However, as stated in this memorandum, chlorination of 1,4-dioxane may increase its toxicity by as much as 1,000 fold.

No mention was made of Hoechst-Celanese's treatment of its wastewater effluent with "three 2-ton chlorine cylinders" as confirmed by the company's July 7, 1989 correspondence or the potential "1,000 fold" increase in the toxicity of the 1,4-Dioxane injected into the Pacolet River.

48. By March of 1991, Hoechst-Celanese and DHEC reached an agreement on the final effluent limitations to be contained within the NPDES permit. In order to complete the permit renewal process, DHEC posted notices of the proposed permit renewal in several locations in the Cannon's Campground community on March 15, 1991.

49. Dean Abbott—a local concerned resident—wrote to DHEC on March 28, 1991 about the advertised NPDES permit.

As a landowner in close proximity to this proposed permit, we are interested in the long term effects, if any, this action would have on the surrounding land and streams. As we understand the permit language, the streams are now classified as "B", which is suitable for many uses, including fishing.

We are interested in knowing that if the permit is granted, will the streams remain class "B" and will they remain suitable for the variety of uses, including fishing ?

Also, I noticed that this proposed permit would replace a permit that expired 5-30-90. My question is have they (Hoechst) been operating since 5-30-90 without a permit and will this permit be any different from the one that expired 5-30-90 ?

50. DHEC responded to Dean Abbott's questions on April 2, 1991 and reassured Mr. Abbot that all protocols were being followed and all of the pertinent waterways were safe for fishing, recreation, and drinking.

Two questions were raised in your letter. The first was regarding the classification and suitability of the receiving streams. As you know, both the receiving streams, Cherokee Creek and Pacolet River, are Class "B" streams under South Carolina Water Classifications and Standards (Regulations 61-68 and 61-69, 1990). One of the requirements under these regulations is the antidegradation rule which specifically mentioned that "existing water uses and the level of water quality necessary to protect these existing uses shall be maintained and protected regardless of the water classification." Since these streams are Class "B" waters, they will be protected and will continue to be suitable for fishing, secondary contact recreation, and as a source of drinking water supply after treatment.

The second question you asked was regarding the existing NPDES permit of the facility. Even though the said NPDES permit expired May 31, 1990, the South Carolina Administrative Procedures Act provides that all requirements in that permit have been, and will be, continued until the new NPDES permit is issued. In the new permit, more stringent limitations have been included; such as a requirement to test all regulated priority pollutants and to conduct biological tests. These stringent measures will ensure that the receiving streams will be well protected.

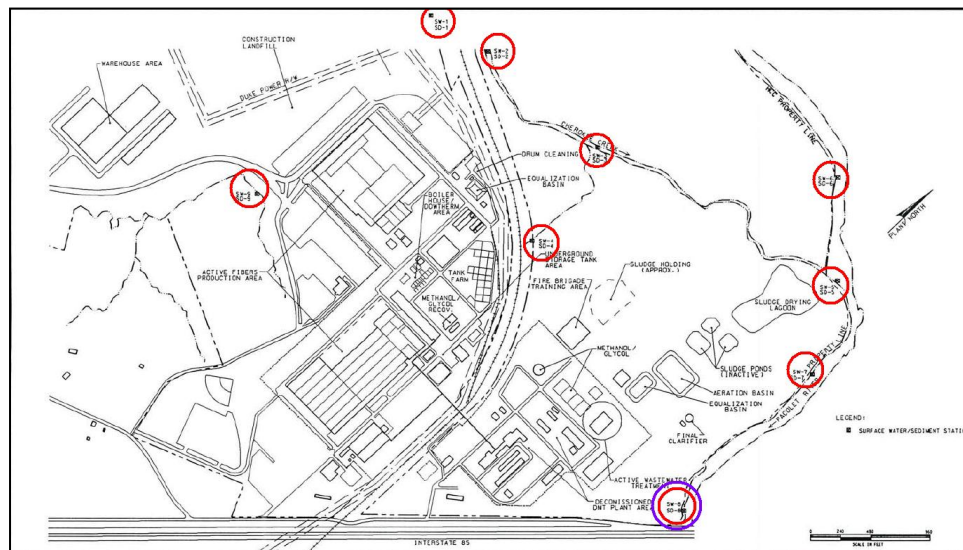
At the time DHEC responded to Mr. Abbott's letter, it had not received the results of the Westinghouse Hydrogeological Study. All sampling and testing had been completed, however, in March of 1991.

51. Six days later—April 8, 1991—the results of the Phase II Hydrogeological Study were made available to DHEC. The groundwater beneath the site showed major contamination.

Concentrations of 1,4-dioxane, and acetaldehyde (ranging from 1,300 to 15,000 ppb), were detected in wells down gradient of the sludge drying lagoon (MW1, RW20, MW22, RW23, and RW24), downgradient of the sludge holding area (MW18), and also downgradient of the fiber equalization (EQ) basin (MW7 and MW26). Packer test and monitor well data suggests that the compounds have not migrated into rock at the location of the fiber equalization basin (MW7, RW8, and PT8). However, north of the sludge holding area (PT18, 92 to 102 feet) and around the sludge drying lagoon, groundwater degradation seems to have penetrated into the fractured rock aquifer. Monitor well RW23, (which is 120 feet deep and penetrates about 60 feet into rock) had a concentration of 10,000 ppb 1,4-dioxane and 9,100 ppb acetaldehyde.

The surface water of Cherokee Creek and the Pacolet River was largely uncontaminated, though a surface water sample taken from just north of the Interstate 85 bridge (and just south of Outfall #1) tested positive for Acetaldehyde. Sediment testing, however, revealed major concerns with

the health of the waterways, showing positive results for “toxic industrial chemicals” (or “TICs”) in all nine samples obtained, including PCB Aroclor 1254, a highly toxic chemical whose production was banned in 1979, twelve years before the sampling was conducted. The map, shown below, details the locations of the contaminated surface water sample (single circled) and the contaminated sediment samples (double circled). Unfortunately, no surface water samples or sediment samples were taken of Polluted Creek.



Despite these revelations, neither Hoechst-Celanese nor DHEC informed Dean Abbott or any other resident of the Cannon’s Campground area of the potential health threats posed by these bodies of water or the numerous and continuing violations of Hoechst-Celanese’s NPDES permit.

52. Three weeks later, on April 19, 1991, DHEC renewed NPDES Permit #SC0002798.

53. On April 25, 1991, six days after the renewal of NPDES Permit #SC0002798, Hoechst-Celanese self-reported two major violations of this permit pertaining to 1,4-Dioxane. Though Celanese was now committed to maintaining discharge levels of 60 pounds per day, on March 20, 1991 an independent lab measured a discharge of 267 pounds per day and on March 27, 1991

the same lab measured a discharge of 199 pounds per day. Neither violation was reported to the public.

54. By May 29, 1991, DHEC determined that “ground water contamination is widespread at the site.” DHEC noted “a need for long term monitoring” and suggested that “it may be prudent for the facility to conduct monitoring of selected downgradient wells from contaminant sources to assess any possible adverse change in groundwater quality or to monitor for potential discharge to surface waters.”

As the ground water investigation proceeds to further delineate the extent of groundwater quality degradation and as groundwater remediation systems become operable, there will be a need for long term monitoring which should be incorporated into Departmental permits when finalized. Extensive groundwater sampling and analyses is being conducted at the facility as part of the assessment. If long delays are encountered during the assessment, it may be prudent for the facility to conduct monitoring of selected downgradient wells from contaminant sources to assess any possible adverse change in groundwater quality or to monitor for potential discharge to surface waters.

55. At the close of this phase of the investigation, both DHEC and Hoechst-Celanese were fully aware of a massive contamination threat both to the surface waters of Cherokee Creek, Polluted Creek, and the Pacolet River as well as to the groundwater beneath the Site and the surrounding area. As of April of 1990, 15 separate areas of confirmed groundwater contamination existed beneath the Site.

**b. Development of Remediation Plans (1991-1994)**

56. The Westinghouse Hydrogeological Investigation Report produced in April of 1991 recommended that Hoechst-Celanese first conduct a “confirmatory sampling” to verify the results of the Report, then develop a quarterly groundwater and surface water sampling plan to better track contamination threats, and finally develop plans for future hydrogeological investigation and groundwater remediation.

57. On August 19, 1991, Hoechst-Celanese reported to DHEC an overflow of “fiber finish” into Outfall 001 in violation of NPDES Permit #SC0002798. According to the company, only 1.8 gallons of the finish escaped into the waterway, yet it had a severe effect on nearby fish. In response to this incident, Hoechst-Celanese officials “indicated that measures are being taken to eliminate future overflows of this type.”

58. But just one month later—September 19, 1991—Celanese reported yet another NPDES permit violation in Outfall 001 that occurred during July of 1991.

59. The “confirmatory sampling” referenced in the April 1991 Westinghouse Report was conducted and analyzed during the summer of 1991, and on September 23, 1991 the parties gathered to review the results. As a primary matter, additional 1,4-Dioxane contamination was identified.

1, 4 Dioxane was confirmed in groundwater in several parts of the facility not previously detected. However, there is some concern in the validity of some of the results, especially in the 10-100 ug/l range and at high concentrations. All applicable protocols were followed. Confirmatory samples of selected wells have been collected, the results of which will be available in the near future.

Additionally, Dowtherm was also identified in groundwater.

Free product of the chemical Dowtherm was detected in one saprolite well. The writer stated that the source needs to be identified (thought to be former drum storage area nearby where product to be recycled was stored). Also, some form of immediate recovery needs to be implemented. If present, soils saturated with Dowtherm should be addressed to remove product.

Curiously, the report wrongly stated that no water supply wells were within close proximity to the plant.

No water supply wells are known to be in use near the plant.

This statement was flatly incorrect. As shown above, the Parties had previously discussed the monitoring of potential groundwater degradation of “a nearby public supply well at a trailer park.” But perhaps most importantly, DHEC recognized that a potential threat existed for the discovered contamination to extend beyond Cherokee Creek, Polluted Creek, and the Pacolet River via fractures in the bedrock.

**If strong fracture lineaments are present, it may be necessary to install bedrock monitor wells across streams or rivers.**

To date, no bedrock monitoring wells have ever been installed across the Pacolet River or Cherokee Creek. As will be shown below, only in the last year have bedrock monitoring wells been installed on the far side of Polluted Creek—and these wells have shown evidence of contaminant migration.

60. The “confirmatory sampling” report also noted that Hoechst- Celanese wished “to proceed aggressively with groundwater remediation” and, on September 30, 1991, Westinghouse submitted to DHEC a “Sludge Characterization Sampling Plan” meant to “characterize the sludge in the five sludge impoundments and to provide the data for a feasibility study to close the impoundments.” DHEC approved Celanese’s Westinghouse sampling plan on October 14, 1991.

61. However, on October 8, 1991—one week before the approval of the sampling plan—Hoechst-Celanese revealed to the Environmental Protection Agency a chemical spill of 20,000 gallons of ethylene glycol discharged into the Pacolet River. According to the report to the EPA, a storage tank of ethylene glycol overflowed due to “operator error” and Celanese “constructed dams to contain the material” in the future.

62. Hoechst-Celanese delivered the “Sludge Impoundment Characterization Report” to DHEC on July 29, 1992. The Report confirmed that the sludge found on the Site presented a threat to groundwater quality in the area.

Sludge characteristic data and several regulatory standards, such as TCLP limits, drinking water standards (Maximum Contaminant Levels or MCL), and health-based criteria for soil and water are presented in Table 5-1. The presence of 1,4-dioxane and tetrachloroethene in sludges and soils beneath the impoundments represent some concern regarding their impact to the groundwater quality. The concentrations of other chemical constituents identified in the samples are less than the regulatory limits mentioned above; however, where no standard is established for a given constituent, the acceptable concentration of that constituent in groundwater is zero or background (for naturally occurring constituents).

The Report noted that “the relationship between the concentration of dioxane and cancer risk is linear” and that “the concentration of 1,4-Dioxane in sludge and subsoil was found to be much higher” than acceptable limits. Of particular concern to the Cannon’s Campground community, the Report noted the following:

1,4-Dioxane is miscible with water .... It will move easily from the soils and sludges to the groundwater and it will be transported in any direction the groundwater flows. It is not readily biodegradable and will very likely persist in the environment at consistent concentrations for many years.

The Report also found that levels of tetrachloroethene found in the sludge were twice as high as the acceptable limits for drinking water. The Report noted that TCE is heavier than water and “will tend to migrate and concentrate in the lower part of the aquifer and if it reaches a fracture system, which has a much higher rate of hydraulic conductivity, it could be transported considerable distances.” The final conclusion of the report was that “plans [to remove these materials and remediate the soil and groundwater] should be implemented as soon as possible in order to limit the impact to the environment and affect a remediation at an earlier date.”

63. On October 29, 1992, Hoechst-Celanese revealed to DHEC four violations of NPDES Permit #SC0002798 during the previous year. Specifically, the toxicity levels of the wastewater effluent being pumped directly into the Pacolet River exceeded legal limits. Despite these

violations, Hoechst-Celanese assured DHEC that “actions have been taken to identify and eliminate sources of effluent toxicity.”

64. On November 9, 1992, SEC Donohue Environment & Infrastructure confirmed that the feared “fracture system” within the soil and bedrock existed below the Site.

**Numerous lineaments can be traced across the Pacolet River to the east and southeast from the property boundary. These lineaments could represent fractures which could provide off-site discharge of groundwater to the Pacolet River and possibly beyond the river.**

The fractures were confirmed by an analysis of the groundwater itself.

**The presence of significant drawdown in EW-9 (10 feet) indicates a strong hydraulic connection between the pumping well and EW-9. Conversely no observed drawdowns were recorded in wells EW-10 and EW-8 located 170 and 260 feet away, respectively. This would suggest that groundwater flow is strongly influenced by a fracture system trending northwest-southeast. Figure 4-1 graphically represents the influence area observed during the test. Calculations are included in Appendix E.**

SEC Donohue specifically investigated how the fracturing of the geology would affect the hydrogeology of the site, and the potential for migration of the contaminants off-site, including under the Pacolet River. In so doing, SEC Donohue conducted two “reverse discrete interval packer tests” in pre-drilled coreholes in the bedrock. These coreholes were “located near the Pacolet River to provide data on the depths of the groundwater contamination in this area and to determine if the potential exists for contaminant migration under the river to adjacent property(s).” The packer tests generated results that were positive for extensive contamination. As a result of these findings, Westinghouse specifically recommended that Hoechst-Celanese begin monitoring groundwater on the far side of the Pacolet River.

**Installation of two cored boreholes with discrete internal packer tests off-site, across the Pacolet River. The cored boreholes will be converted to 2-inch monitor wells. These wells will assess cross-stream groundwater contaminant migration. Proposed packer test locations are presented on Figure 9-2.**

Upon information and belief, off-site testing beyond the Pacolet River has never been attempted.

65. With this information in hand, during a November 12, 1992 meeting DHEC suggested Hoechst-Celanese engage in proactive investigation cross not only the Pacolet River, but Cherokee Creek, as well.

It was recommended that consideration be given to investigate the contaminant plume beyond Cherokee Creek if it appears that the plume may migrate beyond this point.
---

Upon information and belief, no investigation beyond Cherokee Creek has ever been conducted.

66. On March 21, 1994, Hoechst-Celanese—with the assistance of Rust Environment & Infrastructure—produced the final evaluation of the environmental damage caused by the groundwater and surface water pollution. Known as the “Site Characterization Report,” comprehensive evaluation spanned nearly 200 pages and was intended to “report the current understanding of the environmental impact to the soil and groundwater at the site and in adjacent areas” as well as “present recommendations for remediation of impacted areas of the site.” Central to the Report was an identification of Cannon’s Campground residents that may be threatened by the contamination, an in-depth look at the individual pollutants, and a discussion of remediation possibilities.

**a. Private Wells Potentially Threatened**

Celanese produced the following list of Cannon’s Campground residents possessing drinking water wells within a 1-mile radius of the Site.

TABLE 3-7  
Listed Water Wells Within Approximately  
1-mile Radius of the Site  
HCC/SPARTANBURG  
RUST E&I PROJECT 80667.000

Owner	Latitude		Longitude		Well		Total Depth	Casing		Yield GPM
	Degrees	Minutes	Degrees	Minutes	Use	Type		Depth	Diameter	
Roy D. Mabry	35	3	81	51	DO	RA	200	65	6	7
Gloria Gann	35	3	81	51	DO	AB	39	39	24	NA
Betty Crocker	35	3	81	50	DO	RA	255	150	6	25
Jess J. Ogelsby	35	2	81	50	DO	RA	255	42	6	15
Ricky Hawkins	35	2	81	50	DO	RA	230	98	6	15
MM Screen Printing	35	2	81	52	DO	RA	305	NA	6	4
Oates Construction Co.	35	2	81	52	DO	AB	41	41	24	NA
Oates Construction Co.	35	2	81	52	DO	AB	51	51	24	NA
George Mixon	35	2	81	52	DO	RA	205	97	6	30
Jay Rothbenburg	35	2	81	52	DO	RA	600	22	6	1
Saxonia-Franke	35	1	81	52	IN	RA	300	57	6	50
Ken Chapman	35	1	81	52	DO	RA	505	NA	6	12
Fred Whitlock	35	1	81	52	WS	RA	565	67	6	23
John Turner	35	1	81	51	DO	RA	130	.43	6	10
William E. Sullivan	35	1	81	51	DO	RA	205	66	6	5
Keith Childers	35	1	81	51	DO	RA	270	57	6	NA
George Hammett	35	1	81	51	DO	RA	205	100	6	25
Rick Horton	35	1	81	51	DO	RA	80	36	6	30
Lois Parton	35	1	81	50	DO	RA	255	75	6	7

GPM = gallons per minute; NA = information not available  
Well Use: DO = Domestic; IN = Industrial; WS = Public Water Supply  
Well Type: AB = Bucket Augered (Bored); RA = Air Rotary  
Information obtained from South Carolina Water Resources Commission (SCWRC)  
\*Coordinates given to the nearest minute. Hence, the locations of the wells are approximate. The wells presented on this table are the maximum numbers from the SCWRC list that may be present within 1 mile of the site.

Upon information and belief, none of these individuals were ever notified of their proximity to contaminated groundwater.

The Report emphasized that some of these wells may have been exposed to contaminated groundwater originating beneath the Site.

Alternatively, the DowTherm may have entered an open fracture system under the plant area where it was then drawn to the well nest area by pumping of nearby private wells. Based on the fracture trace study performed as part of Phase III, the line between the MW-37/RW-38 well nest and the active plant area coincides with the direction of one of the major fracture trends for the area, though no major fractures were noted on the drill logs for the borings in this area. Nearby private water supply wells at the trailer house community, which is adjacent to the plant property, have reportedly been inactive since the area was provided with municipal water in the late 1970's. The wells are probably set in bedrock due to the low yield of saprolite wells in the area and when they were being used on a regular basis they may have drawn water in the bedrock fractures from great distances (see Section 6.0 for groundwater flow characteristics in bedrock fractures). This pumping may have drawn DowTherm southward from the active plant area via the fracture system.

Upon information and belief, neither Fred Whitlock nor any of the residents of his trailer park community were informed of its findings.

Furthermore, the Report indicated that the southernmost monitoring wells on the Site indicated groundwater contamination extended to the south property line of the Site. This fact suggested a threat to Cannon's Campground residents living to the south of the property.

The fact that some constituents have been identified in the south property line wells indicates that the south edge of the plume(s) have not been determined. There is a strong possibility that degraded water is moving offsite in this area.

The report specifically called for the testing of the private supply well at a "pallet manufacturing shop" located adjacent to Interstate 85.

The private water supply well on the property across the highway, at the pallet manufacturing shop, should be sampled and analyzed. Subsequent actions will be determined when results are evaluated .

Upon information and belief, no Cannon's Campground residents living to the south of the Site were informed of this "strong possibility" of contaminated water migrating beneath their property.

## **b. Identified Pollutants**

The Report identified eight principal categories of pollutants contaminating the groundwater beneath the Site.

### ***i. DowTherm A***

As recognized by "Sludge Impoundment Characterization Report," DowTherm A—a chemical used by Hoechst in producing polyester—contaminated the Site. The chemical components of DowTherm A are 1,1 biphenyl and biphenyl ether. The Site Characterization Report, however, acknowledged that the pollutants were also found in groundwater plumes beneath the Site and in locations of bedrock. The report also specified the health threat DowThermA poses in groundwater.

Ingestion of biphenyl ether can result in nausea, and acute intoxication is possible. The resulting long-term effect of ingestion can be severe degenerative lesions in the liver and kidneys, which are irreversible (International Labor Office, 1971). Biphenyl ether has not been evaluated by the EPA for evidence of human carcinogenic potential (EPA, 1991).

*ii. 1,4-Dioxane*

The Report revealed extensive groundwater contamination with 1,4-Dioxane, positive results appearing in “75 of 97 groundwater sampling points on-site.” The health risks associated with 1,4-Dioxane is as follows.

The systemic toxicity of 1,4-dioxane includes hepatic and renal damage in humans. 1,4-Dioxane is classified as a Group B2 carcinogen (probable human carcinogen), under the EPA weight-of-evidence classification (EPA, 1991).

*iii. Acetaldehyde*

Acetaldehyde was discovered in four separate plumes of groundwater contamination, including along the southern boundary of the Site. The Report recognized Acetaldehyde as a carcinogen, and specifically referenced its potential for unpredictable migration to the surrounding area.

Dissolved acetaldehyde in the groundwater is considered very mobile and will move under the influence of the hydraulic gradient at a velocity similar to that of the groundwater. The heterogeneity of the geologic media may also create some preferred pathways of contaminant/groundwater migration potentially leading to fingered plumes and less predictable migration patterns.

*iv. Chloroform*

The Report found chloroform “at several locations” within the groundwater beneath the Site, occurring at levels up to 170 times the maximum contaminant level recognized by the EPA. The health threats associated with chloroform contamination are as follows.

Chloroform is classified as moderately toxic. The American Conference of Governmental Industrial Hygienists (ACGIH) suspects the compound as a potential carcinogen for humans. The EPA has classified chloroform as a Group B2 (probable human) carcinogen.

*v. Other Chlorinated Solvents*

The following “chlorinated solvents” were detected in groundwater samples beneath the Site: trichloroethene (“TCE”), tetrachloroethene (“PCE”), 1,1-dichloroethene, 1,2-dichloroethane, 1,1,1-trichloroethane, and methylene chloride. The Report noted that several of these chemicals are considered carcinogens and all are considered “priority pollutants” by the EPA. The Report further emphasized that the characteristics of these chemicals makes their migration path very hard to predict.

If sufficient quantities of the compound(s) have been released to allow them to exist as separate phase liquids (DNAPLs in the case of these compounds), the compounds will continue to migrate downward through the water column until they have encountered a relatively impermeable layer or they have been dispersed as residual DNAPL (see Section 4.1.1). If the DNAPL reaches the bedrock, it will either pond at the bedrock surface, move laterally along the top of bedrock, or migrate within fractures. It should be noted that the viscosity of many chlorinated solvents is less than that of water and the interfacial tension is typically lower than that of DowTherm/water. Therefore, these compounds are expected to be much more mobile as a DNAPL than DowTherm or other higher viscosity compounds. In addition, if several potential DNAPL compounds are present in the same area, such as at the F-1 Basin, the properties of these compounds as DNAPLs will be much more unpredictable, thereby increasing the complexity of delineation and remediation.

*vi. Acetic Acid*

Acetic Acid was detected in numerous groundwater samples throughout the site, including a sample of the surface water discharging to Cherokee Creek from Outfall #1. The Report noted that exposure to Acetic Acid represents the following health threats.

Humans are exposed to acetic acid on a regular basis through the ingestion of food and inhalation of because the compound can occur in varying concentrations as either a naturally occurring substance or as a manmade pollutant, such as from car exhaust. Local effects and symptoms of acetic acid exposure include irritation and severe damage of eyes, nose, throat, and lungs. Systemic effects include broncho pneumonia and pulmonary edema from chronic over exposure. The major points of attack of the compound are the respiratory system, skin, eyes, and teeth. Acetic acid is considered a hazardous substance by the EPA, which has proposed an ambient environmental goal of 0.345 mg/l in water based on health effects (Sittig, 1991). It is not considered a carcinogen by the EPA.

***vii. Ethylene Glycol/Diethylene Glycol***

Ethylene Glycol and Diethylene Glycol were detected beneath three areas of the Site. According to the Report, the characteristics of these compounds are such that they quickly biodegrade into other compounds in groundwater “and this implies that any EG/DEG detected in the unsaturated soils is probably from a relatively recent spill or from an ongoing leak.” The health threats posed by EG/DEG are as follows.

The primary exposure pathway for humans is ingestion of antifreeze. EG/DEG are hazardous when they are ingested. The effects of ingestion include stimulation of the nervous system, vomiting, coma, respiratory failure, and renal (kidney) damage. Neither EG nor DEG has been evaluated by the EPA for evidence of human carcinogenic potential. EG is not a priority pollutant or listed as a RCRA hazardous waste (Sittig, 1991). No MCL standards have been set for these compounds.

***viii. Metals***

The Report revealed that concentrations of cadmium, chromium, lead, and manganese in the groundwater beneath the Site were abnormally high. The report concluded that all of these metals constituted a threat to health, but that insufficient information existed to determine either the cause of the elevated concentrations or the necessary remedies.

Background concentrations of metals should be better defined. This may include the installation of monitor wells, specifically used for background purposes. The metals of concern at this site; cadmium, chromium, lead and manganese, should be included in the routine sampling program (when implemented) and as part of the initial analysis of samples from all wells. Data relative to the other TAL metals indicate no further monitoring of those analytes is necessary.

**c. Groundwater Treatment Possibilities**

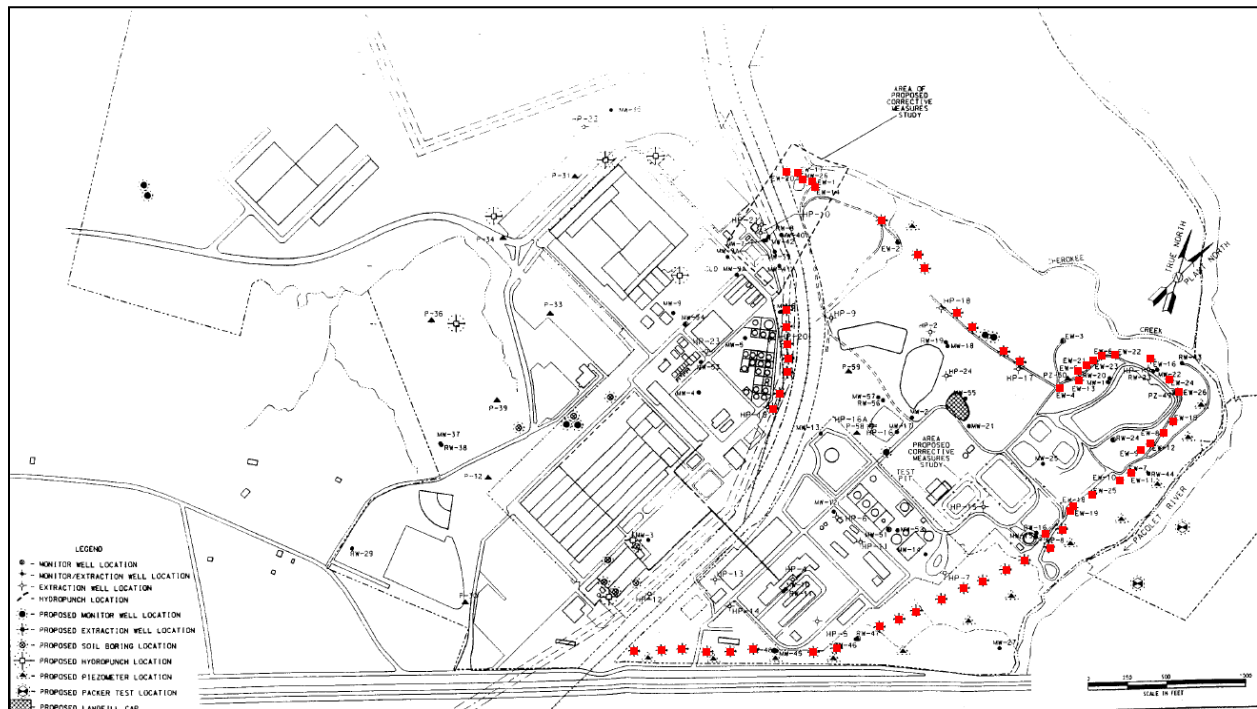
In order to treat the existing contaminants in the Site’s groundwater and to control possible migration of the contaminants to the properties of Cannon’s Campground residents, the report called for the establishment of a chain of extraction wells in addition to the 27 extraction

wells installed in the Fall and Winter of 1990, essentially bounding the Site to the north, east, and south.

The existing extraction system should be started as soon as possible to control potential off-site migration of the degraded groundwater. Upon startup, the system should be monitored and adjusted to optimize system efficiency and hydraulic control of the targeted plumes. The Preliminary Engineering Report (PER) for the Groundwater Treatment system is in review at SCDHEC and approval is pending.

The current extraction system should be expanded to control the other degraded groundwater plumes which could potentially migrate off-site. These well locations are downgradient of the DMT Plant and the WWTP Areas. Monitor wells RW-47, RW-48, and possibly MW-51 (pending further analytical data) should be converted to extraction wells and included in the extraction system. Extraction wells should be installed near EW-2 to control the plume migrating down the #001 outfall creek valley. A tier of extraction wells should also be installed downgradient of the Sludge Holding Area to control the plume emanating from that area.

The locations of these suggested wells are represented below.



### **c. Implementation of Groundwater Treatment (1994-2001)**

67. Hoechst-Celanese submitted its formal application for a permit approving the installation of the groundwater extraction system on March 28, 1994.

68. On April 21, 1994, DHEC amended NPDES Permit #SC0002798 to provide for the regulation of a new outfall—Outfall #10—designed to be the point of discharge of the treated water envisioned in the new groundwater extraction system into the Pacolet River.

69. In a June 13, 1994 meeting, DHEC officials suggested to Hoechst-Celanese that it should sample private well water within a one mile radius of all identified plumes of pollution. Hoechst-Celanese representatives Jim Pullen and Bruce Bowyer, however, were concerned with the appearance of Hoechst-Celanese conducting testing.

**Well Survey and Off-site Well Sampling**

Tom asked for a drive-through well survey extending a 1-mile radius from individual plumes. We discussed the possibility of sampling the water well on the south side of Interstate 85. Bruce expressed concern that constituents detected would be construed as emanating from the plant. Jim wanted SCDHEC, not HCC/RUST E&I, to sample the well. Tom and Brad said that the department would perform the sampling in 4 to 6 weeks. Tom will find out if the SCDHEC laboratory can handle the analyses; if they cannot, then the HCC contract laboratory (Bionomics) will be used. The sample from the well would be analyzed for standard scans, 1,4-dioxane, and possibly DowTherm.

Of course, the “constituents” to be tested—1,4-Dioxane and DowTherm—were, in fact, “emanating from the plant.” No record exists as to why DHEC cooperated with Hoechst-Celanese in preventing this fact from becoming known to the Cannon’s Campground community. In fact, no record exists as to whether any off-site well sampling was ever conducted during this time.

70. On the same day—June 13, 1994—Hoechst-Celanese reported to the Environmental Protection Agency a discharge of ethylene glycol from Outfall 001 into Cherokee Creek. The company had no explanation of the cause of the contaminant release, nor any estimate of how much of the pollutant made its way into the creek.

71. On July 2, 1994, Hoechst-Celanese revealed that approximately 250 pounds of ethylene glycol originating “from an unknown source” on the Site was discharged into Cherokee Creek and upon the neighboring land.

72. DHEC approved the construction of Hoechst’s proposed well extraction network on August 23, 1994. Construction of this network was completed by October of 1994.

73. On April 24, 1995, Hoechst-Celanese submitted for DHEC’s consideration the “preliminary engineering report” for the Phase II groundwater treatment system referenced in the 1994 Site Characterization report. This treatment system, utilizing the initial and additional extraction wells constructed on the Site, was designed to pump groundwater to the surface, expose the groundwater (and contaminants) to “an ultraviolet (UV) light-hydrogen peroxide system” in order to degrade the contaminants before discharging the treated water into the Pacolet River.

74. On June 27, 1995, Hoechst-Celanese reported that a truck on the Site stuck a chemical transfer line at the facility, resulting in the spilling of approximately 930 pounds of ethylene glycol on the ground.

75. While the proposal for the groundwater treatment system was pending, on July 27, 1995 Celanese reported yet another NPDES violation, this time in the form of a “Biological Oxygen Demand” exceedence in Outfall 001 pertaining to waters pumped into Cherokee Creek.

76. After reviewing this preliminary engineering report, DHEC approved the use of the UV/Hydrogen Peroxide system on August 23, 1995.

77. On December 23, 1995, Hoechst-Celanese reported an equipment failure in its wastewater treatment plant which released an unknown quantity of DowTherm into the Pacolet River.

78. Just four days later, December 27, 1995, Hoechst-Celanese reported to DHEC yet another series of NPDES permit violations despite the measures it allegedly took to remedy its problems the previous July. This time, however, the violations occurred both in Outfall 001 (Cherokee Creek) and Outfall 004 (Polluted Creek). Hoechst-Celanese again assured DHEC that appropriate measures were being taken to eliminate the unlawful contamination of Cherokee Creek and Polluted Creek from continuing.

79. On May 6, 1996, a severe failure in an above-ground storage tank resulted in the release of 5,000 gallons of ethylene glycol onto the ground of the Site when the floor of the storage tank ruptured. The Environmental Protection Agency recorded the incident as follows.

80. On May 7, 1996, Hoechst-Celanese provided a report of the progress of the extraction wells and related groundwater treatment activities. The results of the treatment and subsequent testing were, at best, mixed.

The analytical data from the Phase II extraction well groundwater samples generally corroborated historical data on groundwater quality. However, the analyses of some groundwater samples did yield unexpected results. The eastern edges of the 1,4-dioxane, DowTherm™ constituent, and chlorinated solvent plumes identified at EW-2 do not extend to EW-28. 1,4-Dioxane, which was thought to be present in the groundwater east of the DMT plant, was detected in only two of the newly installed wells south of the wastewater treatment plant (EW-32 and EW-35). Conversely, the chlorinated solvents and chloroform plumes are more widespread in the southern part of the site than earlier anticipated.

Nevertheless, Hoechst determined that the wells in the extraction system “have been well placed and will achieve the objective of site stabilization.” Thus the groundwater treatment and remediation program proceeded accordingly.

81. Over the next five years, as the groundwater treatment and remediation program continued, absolutely no off-site investigation efforts were conducted to determine whether any of the groundwater degradation affected or threatened private wells.

82. While groundwater treatment continued, Hoechst-Celanese repeatedly violated the terms of its NPDES permit. On July 16, 1998, DHEC informed Celanese that it again violated the effluent contaminant limitations on NPDES Permit #SC0002798 pertaining to its wastewater being discharged to the Pacolet River.

83. Two months later, on September 29, 1998, DHEC again informed Hoechst-Celanese that it was still in violation of the effluent contaminant limitations on NPDES Permit #SC0002798.

On August 3, 1998, HNA Holdings, Inc. was informed that the quarterly toxicity sample submitted to SEAUS laboratory for 48 hour static acute toxicity testing utilizing *Ceriodaphnia dubia* had failed. Mr. Mark Cann of SCDHEC Appalachia III District, EQC was informed immediately of the test results. A sample of the effluent from Outfall #002 was immediately collected and sent out to SEAUS for confirmation of the July 29th analysis. The results of that sampling were received August 5, 1998 and the result was another failure. Mr. Cann was once again notified of the test results. Retained samples from both July 29th and August 3rd were sent to Rogers and Callcott for chemical oxygen demand, chlorides and metals analysis. All operating data and analysis for the wastewater treatment plant was reviewed for the period in question, HNA Holdings, Inc. could find no evidence of a change in any of our monitored parameters.

84. On November 23, 1998, Hoechst-Celanese sold all of its assets at the Site to Arteva Specialties, Sarl (doing business as "KoSa"). The sale included an agreement by which KoSa assumed all responsibilities under NPDES Permit #SC0002798.

This Agreement is entered into this date by HNA Holdings, Inc. and ARTEVA Specialties Sarl in order to effect a transfer of the South Carolina Department of Health and Environmental Control Bureau of Water NPDES Permit No SC0002798 and the responsibility, coverage, and liability thereunder from HNA Holdings, Inc. to ARTEVA Specialties Sarl.

ARTEVA Specialties Sarl certifies that there will be no operational changes that warrant a permit modification.

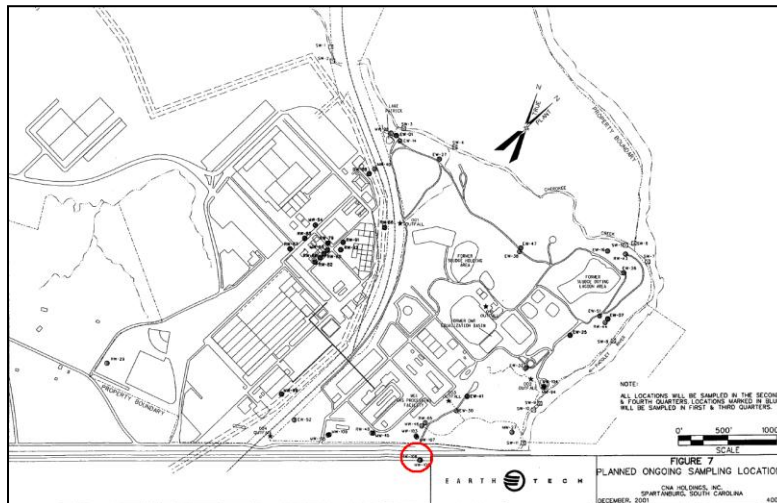
On the date such transfer becomes effective, ARTEVA Specialties Sarl agrees to assume the responsibility, coverage, and liability of the permit and HNA Holdings, Inc. agrees to relinquish all rights which it may have under said permit.

This Agreement is entered into by both parties this twenty first day of October 1998, said transfer is to become effective on November 23, 1998.

Responsibility for on-going environmental remediation, however, remained with Hoechst-Celanese.

**d. Discovery and Treatment of Off-Site Contamination (2001-2010)**

85. In June of 2001, a routine groundwater sampling analysis revealed a contamination plume of chloroform existing at the southern edge of the facility. In response, Hoechst-Celanese installed two monitoring wells in the south side right-of-way of Interstate 85 on October 22, 2001 and October 23, 2001. The location of these wells, circled below, was mere feet from the “pallet manufacturing shop” whose private water supply was suggested to have been tested on March 21, 1994, over seven years before.



Groundwater samples were taken from each well on October 30, 2001. Analyses of both samples detected chloroform, confirming the existence of an off-site plume of groundwater pollution.

86. On December 11, 2001, Hoechst-Celanese produced an “Operating Strategy Report” summarizing the remediation and treatment activities of the previous five and one-half years and the results thereof. The Report focused on three subject matters: a) the results of groundwater remediation and treatment; b) future plans for groundwater remediation and treatment, and c) the risk posed to the Cannon’s Campground community by the groundwater and surface water degradation.

**a. Results of Groundwater Remediation**

The Operating Strategy Report revealed that 2001 groundwater analysis still indicated that DowTherm A, 1,4-Dioxane, and Chloroform remained present in the groundwater beneath the Site in significant quantities. Remediation results for each of these chemicals were mixed.

*i. DowTherm A*

Results of DowTherm A treatment showed some lessening of DowTherm A levels in the subsurface, though the pollutant continued to be present.

Sampling results subsequent to the initiation of operations of the extraction system have demonstrated reductions in the size of the DowTherm A™ plumes, as well as a general reduction in the DowTherm A™ concentrations within the plumes.

*ii. 1,4-Dioxane*

Progress with 1,4-Dioxane contamination was less positive.

Sampling results subsequent to the initiation of the operation of the extraction system have shown a slight north and eastward shift of the plume, down gradient and towards the extraction system. In general, the plumes have intersected to form one larger plume.

In addition, the Report noted that 1,4-Dioxane was beginning to be detected along the southern portions of the Site where the pollutant was though not to exist. This caused concerns that perhaps the contaminant plume of 1,4-Dioxane was larger than previously expected.

*iii. Chloroform and Other Chlorinated Solvents*

The worst results of the groundwater remediation pertained to the chloroform plume on the southern edge of the Site. In fact, the remediation efforts proved wholly unsuccessful in lessening or containing the chloroform pollution.

Sampling results subsequent to the initiation of the operation of the extraction system have shown little overall change in the chloroform plumes. The primary plume on the southern edge of the site remains largely unchanged. Isolated detections of chloroform along the north and eastern edges of the site continue to be intermittent.

Also, as indicated above, groundwater sampling in October of 2001 (conducted off-site for the first time) revealed that the chloroform plume had migrated beyond the boundaries of the Site towards the residential Cannon's Campground community to the south.

**b. Future Plans for Groundwater Remediation**

Surprisingly, Hoechst-Celanese decided that the results of the Report justified ceasing extracting and treating groundwater on the north and east boundaries of the extraction well network.

All extraction wells along the Pacolet River and Cherokee Creek will be turned off. The wells to be turned off are shown in Red on Figure 6. The extraction system will be maintained in operational condition, in case a change in conditions indicates it should be re-started.

However, with the results demonstrating a worsening of chloroform contamination, Hoechst-Celanese chose to maintain its extraction treatment process along the southern boundary of the Site.

The southern portion of the extraction will be maintained in operation because chloroform has been identified off site. This extraction will continue until additional activities or data indicate a change in remedial strategy is appropriate. The extraction wells which will continue to operate are presented in green on Figure 6.

The Report also indicated that "further remedial alternatives for the chlorinated solvent plume will be investigated."

**c. Risk Posed to the Cannon's Campground Community**

In conjunction with the Operating Strategy Report, Hoechst-Celanese completed a preliminary risk evaluation ("PRE") of potential human and ecological exposure to site-related contamination through contact with groundwater discharged to surface water and sediment of the

Pacolet River and Cherokee Creek and also through direct contact with groundwater migrating off-site to the south. The following threat potentials were recognized by the PRE.

Human populations that potentially may be exposed to site-related constituents under current conditions include industrial workers at the plant, residents living near the site, recreational users of the Pacolet River and Cherokee Creek, and hypothetical downstream residents using the Pacolet River as a drinking water source.

Hoechst-Celanese's PRE noted that the pollution on site threatened the quality of private drinking wells near the plant.

A total of eleven drinking water wells were identified within the two one-minute grids south (downgradient) from the site. There appear to be more drinking water wells than are recorded. The closest private water supply well is located approximately 700 feet south of the plant's southernmost boundary, across I-85. Off-site residents potentially could be exposed to site-related constituents in groundwater that has migrated off-site through their use of groundwater as a potable water supply.

The PRE also recognized risks posed to the community and the ecology through exposure to surface water.

Another potential pathway for human exposure to site-related groundwater constituents is through exposure to surface water of the Pacolet River and Cherokee Creek, which may be impacted through discharge of groundwater that has migrated from the site. ... Potential human exposures to the surface water of the Pacolet River and Cherokee Creek in the vicinity of the site are assumed to be through recreational fishing and through wading by an adolescent. Another potential human exposure to Pacolet River surface water is through its use as a drinking water source.

The PRE recognized numerous threats to the ecological community.

The principal medium through which ecological receptors may be exposed to site-related constituents is the surface water of Cherokee Creek and the Pacolet River. The Pacolet River potentially receives constituents via groundwater discharge to the river and to Cherokee Creek, which drains into the river. ...

The ecological receptors with the greatest potential for exposure to site-related constituents in Pacolet River and Cherokee Creek surface water are aquatic organisms. Aquatic organisms may be continuously exposed to surface water constituents and may take up constituents from the water through ingestion, respiration, and dermal absorption. ...

Aquatic ecological receptors in the Pacolet River and Cherokee Creek, particularly benthic macroinvertebrates, also could be exposed to site-related constituents in sediment. Constituents may potentially be present in sediment as a result of partitioning of groundwater constituents to sediment during groundwater discharge to surface water.

The results of the Preliminary Risk Evaluation revealed that levels of Arsenic in Cherokee Creek posed a potential threat to human health via fish ingestion originating from the creek. The PRE dismissed this threat, however, as “unlikely.”

The PRE emphasized, however, that the migration of groundwater beyond the southern boundary of the Site constituted a notable threat to the health of the Cannon’s Campground community. The following chemicals were noted to be “Chemicals of Potential Concern” (“COPCs”) threatening the residents to the south.

Saprolite groundwater - 1,1,2,2-Tetrachloroethane, 1,4-dioxane, chloroform, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and lead.

Rock groundwater - Chloroform, methylene chloride, tetrachloroethene, and trichloroethene.

87. In view of the threat to Cannon’s Campground residents to the south, on February 5, 2002, Hoechst-Celanese—through EarthTech—first sought to test private wells south of Interstate 85.

The sample to be collected will be analyzed for the presence of chloroform. A chloroform plume has been identified at the KoSa facility and extends beneath I-85. Chloroform has been detected in a saprolite well adjacent to I-85, opposite the plant, at a concentration of 0.0964 mg/L in October 2001. At the same time a concentration of 0.324 mg/L chloroform was detected in a bedrock well in the same area. The MCL for total trihalomethanes (including chloroform) is 0.080 mg/L. No other trihalomethanes have been detected in samples collected from either of these wells.

The owner of the private well was identified by name and street address, though no evidence exists that she had ever been contacted by Hoechst-Celanese prior to this time. On April 8, 2002, Hoechst-Celanese informed DHEC that sampling of the private well revealed negative results.

88. On December 17, 2002, Hoechst-Celanese produced its study of the effectiveness of the extraction well network in controlling the migration of contaminants off-site to the south, towards the Cannon's Campground residents. The study concluded that the extraction well system was a failure.

As shown in Figure 1, most of the chloroform plume is beyond the extraction well perimeter. The concentrations of chloroform in wells near the center of the plume, such as RW-48 and RW-65, have remained stable or increased slightly in recent years. This demonstrates that chloroform is not being effectively contained or recovered from beyond the perimeter and suggests that the remainder of the wells should be shut down and focus should be placed on alternative technologies.

As a result of these conclusions, Earth Tech—the independent contractor conducting the study—asserted that “an alternative approach that more directly addresses the chloroform plume is recommended.” As an alternative to the failed extraction well program, Hoechst proposed to commence a “sodium lactate injection program” in which chemicals would be injected into the groundwater with the hope of degrading the chloroform. DHEC approved the sodium lactate injection program and issued the appropriate permits on March 14, 2003.

89. Just as the sodium lactate injection program began, on March 17, 2003 KoSa reported to DHEC that it violated the “chronic toxicity maximum percent effect” limits on NPDES Permit #SC0002798 during a February 2003 test. Outfall 002—flowing directly from the wastewater

treatment plant to the Pacolet River—was the source of the violation and its chronic toxicity percent effect was 65% higher than allowable limits.

90. On February 8, 2005, INVISTA—now in possession of the Site—reported yet another major spill of 4,500 gallons of ethylene glycol onto both concrete and soil at the Site. In response to the spill, INVISTA stated that it “closed the valve, excavated soil.” No mention was made of the potential for further groundwater degradation.

91. Approximately 18 months later, on August 29, 2006, INVISTA reported yet another chemical spill at the Site. This time chloroform was the toxic chemical released into the environment.

92. Less than one month later, on September 19, 2006, Hoechst-Celanese reported that its remediation efforts pertaining to the chloroform groundwater plume at the southern edge of the Site were encountering difficulties.

As previously indicated, a few sampling locations near the suspected chloroform source area and downgradient of the treatment area have shown stable or increasing concentrations. It is recommended that additional remediation be implemented in this area. The additional remediation will be more focused than the prior events and will be designed as a polishing event to supplement and enhance the existing progress. A work plan will be developed for this polishing event. The work plan will be submitted by February 28<sup>th</sup>, 2007 with the goal of implementation during 2007.

Hoechst-Celanese’s contractor withdrew the suggestion for a “polishing event” on February 26, 2007, citing concerns of the effect the “event” would have on the ability to monitor on-Site levels of the contaminant plume. However, Celanese did note that increasing levels of chloroform contamination in the off-Site monitoring wells adjacent to the “pallet manufacturing shop” “suggest that activity in this downgradient area should be considered.”

At the same time, the increased concentrations at wells MW-109 and RW-108 suggest that activity in this downgradient area should be considered. Work on a plan for actions related to MW-109/RW-108 is underway. With your agreement, monitoring of the treatment area will continue and a plan for actions related to these wells will be submitted upon completion. In the mean time, the December 2006 data report will be submitted by March 31, 2007, as scheduled.

93. As plans for this off-Site “activity” were being formulated, on March 14, 2007 INVISTA reported another chemical spill on the Site. An unknown amount of the contaminant, DowTherm A, was released upon the land of the Site when a storage tank “overflowed from unknown causes.”

94. On July 8, 2007, INVISTA reported a major spill of 2,000 gallons of ethylene glycol onto the ground as a result of a ruptured pipe on a storage tank. INVISTA stated that the release “flowed into a gravel area” and “the cause of the rupture is unknown.”

95. The off-Site “activity” designed to address the migration of the chloroform plume to private property was initiated on September 24, 2007. Over the next four months, a total of eight drums of sodium lactate were injected into well RW-108 (adjacent to MW-109 in the right-of-way of Interstate 85). Chloroform levels in MW-109 tested in December of 2007, however, increased slightly.

96. On May 31, 2008, INVISTA revealed that it spilled an “unknown amount” of ethylene glycol upon the ground at the Site. In response to the incident, INVISTA assured the Environmental Protection Agency that “cleanup [is] underway.”

97. Three weeks later, on June 23, 2008, INVISTA notified the Environmental Protection Agency of the release of an unknown quantity of 1,4-Dioxane onto the surface of the Site as the result of a storage tank due to “unknown causes.” No public record exists indicating remedies enacted by INVISTA.

98. On September 8, 2008, INVISTA was fined \$5,000 by DHEC for numerous violations of South Carolina regulations pertaining to the storage and maintenance of hazardous chemicals at the Site.

Summary: INVISTA S.a.r.l. (Respondent) owns and operates a plastic and resin manufacturing facility. The Respondent has violated the South Carolina Hazardous Waste Management Regulations as follows: failure to list the correct waste codes on the waste index and submit corrections to the Department; failure to list the EPA Hazardous Waste Number on the hazardous waste label; failure to keep containers of hazardous waste closed; and, failure to keep containers of universal waste closed and properly labeled.

Action: The Respondent has agreed to: ensure that all containers of hazardous waste are managed properly; ensure that all required Quarterly Report information is accurately reported; ensure that universal waste is managed properly; and, pay a civil penalty in the amount of five thousand dollars (\$5,000.00).

This civil penalty did not reference the numerous chemical spills upon the INVISTA facility.

99. On September 24, 2008, Hoechst-Celanese providing DHEC with its June 2008 groundwater monitoring report. The company reported that the highest 1,4-Dioxane levels on the site were at 2.87 mg/L. Within this report, Hoechst-Celanese also recommended to DHEC that its semiannual monitoring of the 1,4-Dioxane plume be scaled back to biannual monitoring.

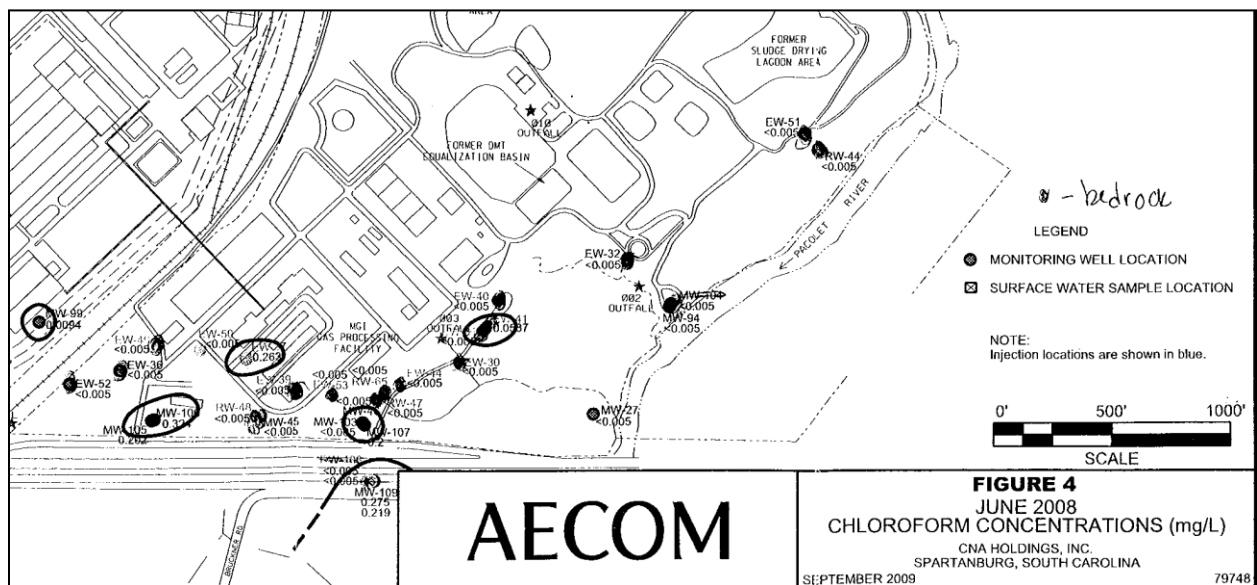
100. On March 17, 2009, DHEC denied Hoechst-Celanese's request to reduce its groundwater reports to an every-other-year schedule. According to DHEC, on-Site levels of 1,4-Dioxane necessitated continuing semi-annual reports. DHEC also demanded that Hoechst-Celanese begin submitting additional information (such as isoconcentration maps and data trends) that had not been included in the company's previous reports.

101. On April 16, 2009, Hoechst-Celanese pushed back on DHEC's demands due to what it characterized as "economic conditions" affecting its business and the monitoring requirements pertaining to the Site.

I would like to thank both you and Mr. Knight for taking the time to speak with me concerning the Spartanburg site. As we discussed, the economy finds us in difficult circumstances, and it is critical that Celanese manages its funds in a way that allows it to weather the economic storm while also collecting the necessary information to manage its responsibilities, including the Spartanburg site. The purpose of this letter is to propose a plan forward to provide the essential data for the site based on the recent email and letter exchanges as well as the information shared during our conversations. The key areas requiring additional data to confirm current conditions include 1,4-dioxane in groundwater, chloroform in groundwater, and surface water quality of the downgradient streams.

According to Hoechst-Celanese, the “long-term concentration trend [of 1,4-Dioxane] is strongly downwards” and rendered much of what DHEC was requiring unnecessary. Nevertheless, Celanese acceded to DHEC’s demands pertaining to the continuing monitoring and additional information for the June 2009 plan, but suggested that “a face-to-face meeting to discuss further plans for the site is appropriate.”

102. Hoechst-Celanese released the results of the June 2009 sampling plan to DHEC on September 29, 2009. The results confirmed that, despite the lactate injection program, an undefined plume of chloroform contamination continued to exist off-Site (as shown by the plume map below).



Hoechst-Celanese proposed no extension of the groundwater monitoring beyond the single monitoring well in the Interstate 85 right-of-way, but rather stating that “[c]ontinued monitoring at this location will be used to determine if the nearby and upgradient treatments will impact the area, or if further remediation is required.”

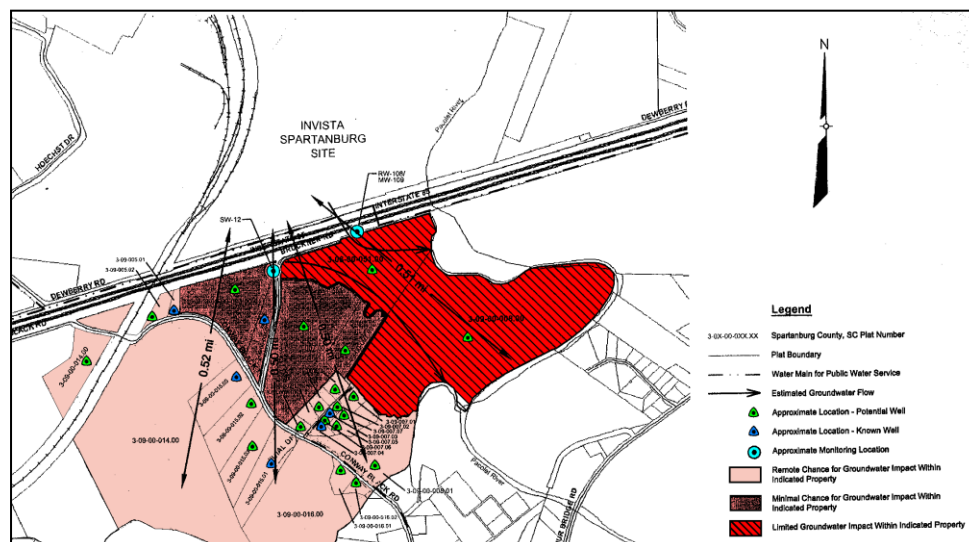
103. At DHEC’s insistence, on February 3, 2010 Hoechst-Celanese agreed to prepare a “workplan for off-site delineation of the contaminant plume.”

*e. Present Contamination Levels and Off-Site Migration (2010-present)*

104. On May 17, 2010, a Private Well Impact Study was completed by Hoechst-Celanese and provided to DHEC. Hoechst-Celanese described within the report all properties within one-half mile directly south of the Site that it ascertained were threatened to some degree by groundwater degradation. Hoechst-Celanese described its methodology as follows.

Properties were also classified based on the anticipated likelihood of groundwater impact associated with the known chloroform plume. The designation was based on the known location of the plume, including data from wells MW-109, RW-108, surface water location SW-12, and the previously sampled private well located along Bruckner Road; area topography; and area drainage features, including a creek that runs through the area and drains into the Pacolet River. The Pacolet River is the primary drainage feature for the surrounding area. The classifications are based solely on the potential for groundwater from the plume area to pass through the property.

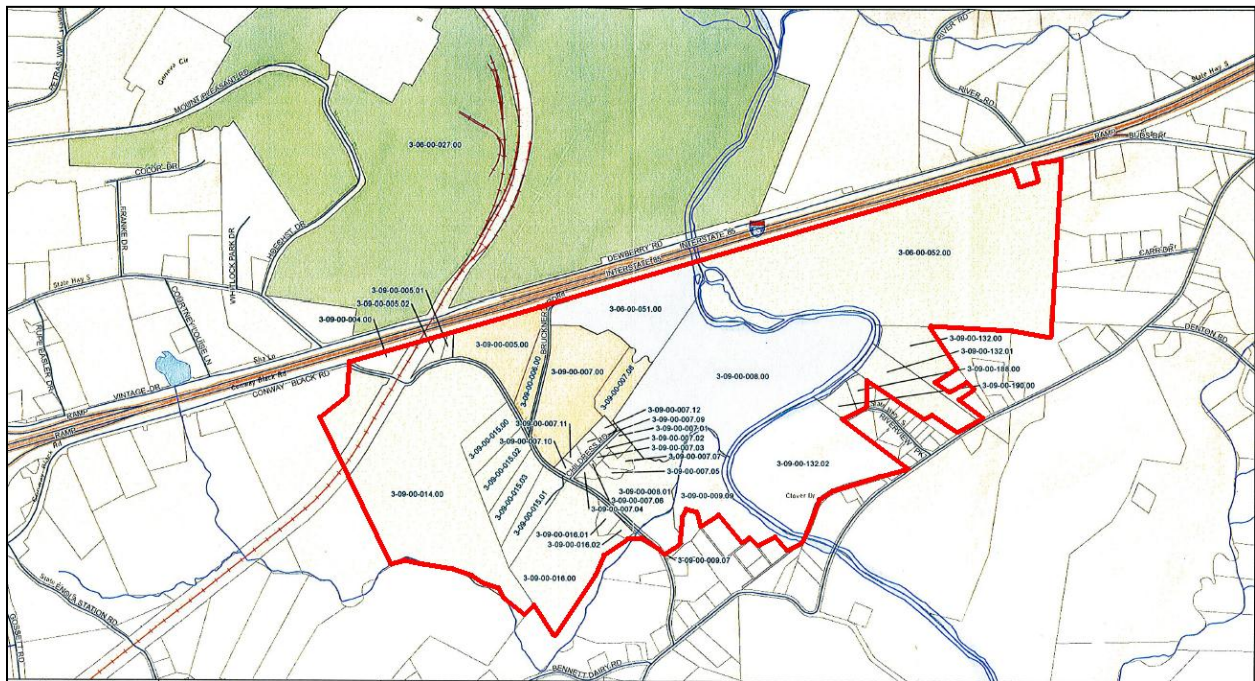
Celanese also included a map of the potentially threatened areas.



105. On June 1, 2010, DHEC responded to the results of this private well study by requesting that Hoechst delineate potential private property threatened on the east side of the Pacolet River.

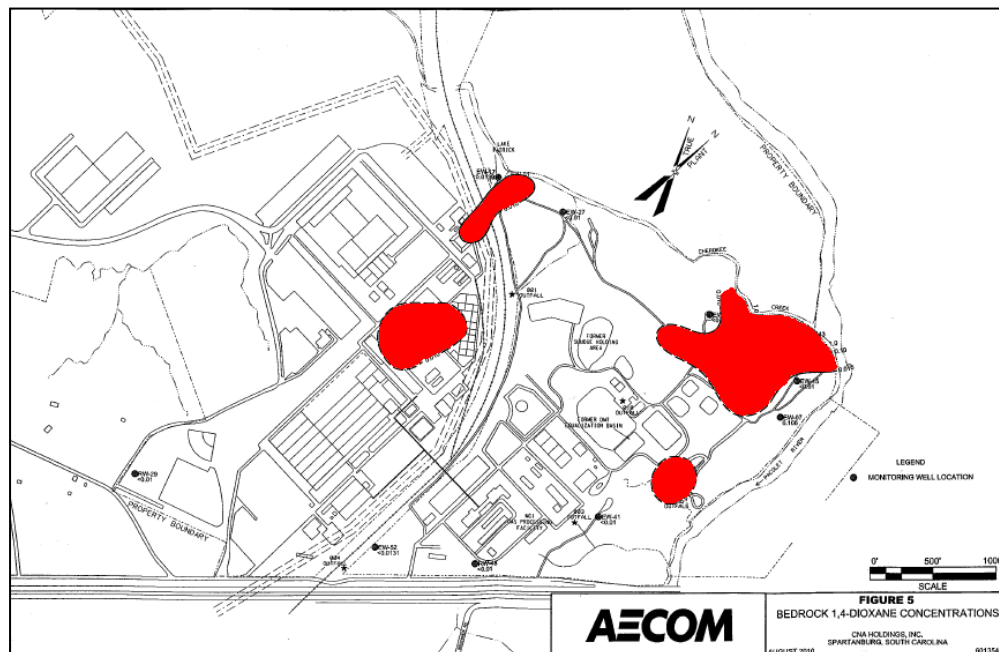
Thank you so much for sending the copy of the fracture trace study in the Response submittal. The receptor survey was only conducted south of the site and not east of the site. Upon review of the fracture trace study, the Department has determined that a search for receptors in the eastern direction is warranted. Please submit these results in the September site wide report.

As noted above, the “fracture trace study” and the associated threat for migration of contaminated groundwater beneath the Pacolet River had been warned by DHEC since September of 1991, who called for groundwater monitoring on the east side of the river. The “expanded receptor survey,” produced by Hoechst-Celanese on September 29, 2010, extended the list of potentially damaged properties to those outlined below.

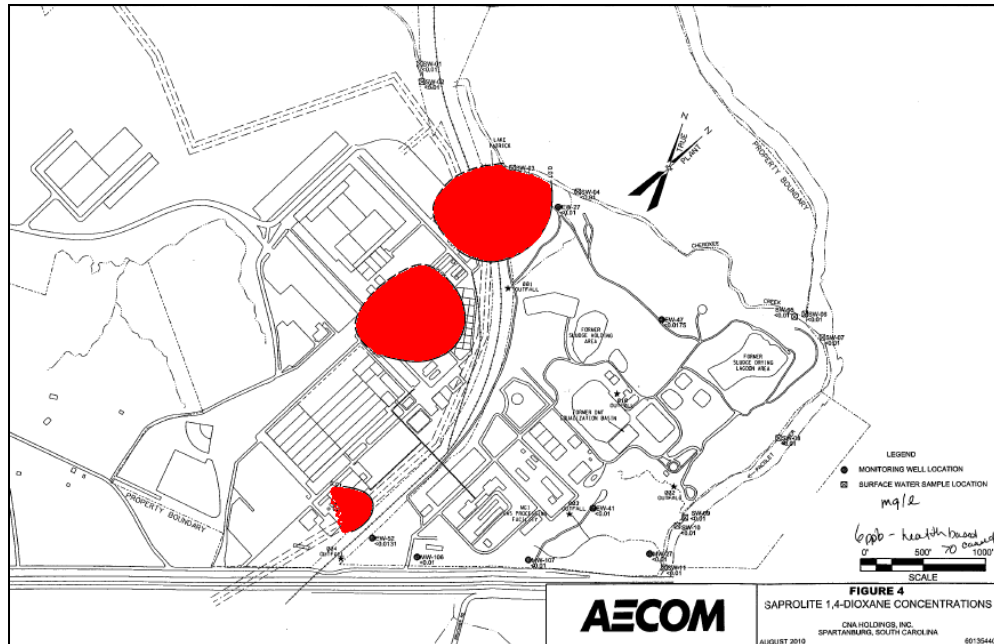


106. The “expanded receptor survey” produced on September 29, 2010 accompanied the June 2010 Site Assessment Report (which included updated groundwater testing results). The

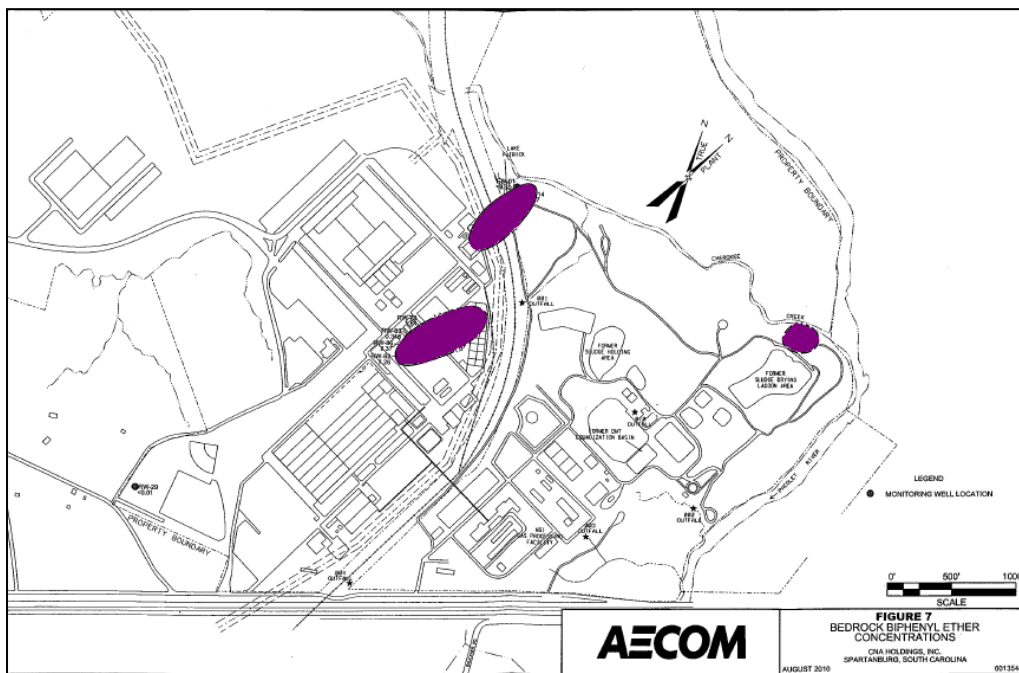
Report's narrative did not reference any specific levels of 1,4-Dioxane within the groundwater beneath the Site, but the accompanying testing results revealed that levels of the contaminant rose to 4.860 mg/L, nearly twice as high as the peak levels reported two years before. The presence of 1,4-Dioxane in bedrock beneath the Site confirmed previously detected contaminant plumes on the eastern and northern boundaries of the Site (abutting Cherokee Creek and the Pacolet River) as well as a contaminant plume in the center of the Site.



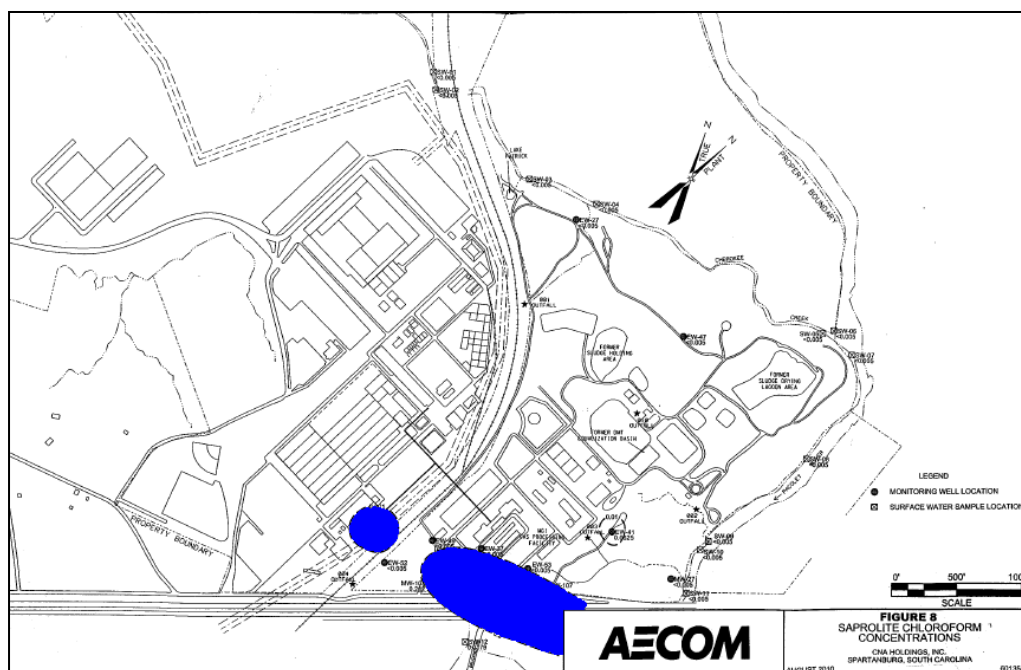
However, a new plume of 1,4-Dioxane in the saprolite above the bedrock was detected on the southern edge of the Site, where groundwater flows in the general direction of the Cannon's Campground community.



The presence of biphenyl plumes within the bedrock was once again confirmed.



And the migration of the chloroform plume off-Site onto private property was finally set forth on an isoconcentration map (albeit with the help of only one off-Site monitoring well).



107. In a “Remedial Effectiveness Report” compiled by Hoechst-Celanese approximately one month later, data trends of monitoring wells located near the center of the Site showed a clear and, in some cases, massive increase in levels of 1,4-Dioxane in the groundwater from 1992 to 2010. The initial concentrations of 1,4-Dioxane in the groundwater beneath the Site were highest in the northeast of the site near the former unlined sludge drying and sludge storage areas. Hoechst-Celanese explained the dramatic increase in 1,4-Dioxane concentrations in center of the Site, however, as the result of plume migration...*to the west*.

Trend plots for 1,4-dioxane in the central plant area are also presented in the appendix. Concentrations of 1,4-dioxane in the central plant area are higher than those reported in the operating strategy report. The highest concentration reported in the central plant area is 4.86 mg/L at well RW-08. This result is the highest concentration of 1,4-dioxane detected at the site during the June 2010 event. Monitoring at the site through the 1990s had indicated that concentrations ranging from 5 to 20 mg/L were regularly noted, with decreasing frequency over time. 1,4-Dioxane is mobile in groundwater and the increases noted in some wells in the central plant area are likely the result of plume migration, with overall declines in the maximum values throughout the plume.

This November 2010 suggestion of contaminant plume migration from east to west was a first for Hoechst-Celanese, which to this point had suggested the vast majority of contaminants

beneath the site would be contained by what it considered “hydrogeologic boundaries” of Cherokee Creek and the Pacolet River.

108. The residents of the Cannon’s Campground community were unaware of any of the details discussed in this notice until November 16, 2010. On that date, WSPA-TV reporter Chris Cato—an employee of the Spartanburg, South Carolina CBS affiliate—began airing a series of reports entitled “Shadow of Sickness” related to cancer rates in the community and the possible relation to pollution emanating from the Site. “Shadow of Sickness” was a five-part series that aired intermittently through May of 2011.

109. In the immediate wake of the airing of “Shadow of Sickness,” INVISTA—now charged with maintaining the Site’s adherence to the Clean Water Act and NPDES limitations, applied for a modification of NPDES Permit #SC0002798 on January 18, 2011. As a part of this modification, INVISTA sought to add Outfalls 001 and 004 to the NPDES permit (which had been removed years before). According to the application, INVISTA identified “a non-utility water source that is sporadically discharged” from the outfalls, requiring their addition to the NPDES permit. According to INVISTA, the necessity of adding Outfall 001 to the NPDES permit was related to excessive stormwater runoff that would, in turn, release regulated chemicals into Cherokee Creek. While INVISTA asserted that Outfall 001 overflows “no more than 5% of the year,” this constitutes over 18 days per year in which Cherokee Creek receives regulated chemicals. In contrast, Outfall 004—discharging directly into Polluted Creek—due to its receipt of polyester chips washing from the internal sides of railcars delivering polyester fiber within the Site.

Discharge from Outfall 004 is comprised only of re-circulated non-contact cooling tower blowdown, air conditioner condensate and approximately 500 gpd of residual city water from the rinsing of empty railcars. As stated previously, screens are used to capture any residual chips (polyester chip) that may be rinsed off the internal sides of the railcars. There are no surfactants, detergents, or other chemicals used in this rinsing. Along with these sources, an underground spring emerges at this outfall and discharges at the rate of 10 to 15 gallons per minute. Outfall 004 discharges into an unnamed tributary that ultimately flows into the Pacolet River.

INVISTA emphasized “screens are used to capture any residual chips (polyester chip) that may be rinsed off the internal sides of the railcars.”

In conjunction with the application, INVISTA sampled the effluent being discharged from each Outfall—and both samples were positive for contaminants. Outfall 001 showed traces of chloroform, but INVISTA dismissed these results as “an anomaly that resulted from possible contamination during the sample collection and/or during laboratory analysis.” Despite the results themselves, INVISTA insisted it “has no reason to believe that chloroform is present in Outfall 001.”

Sampling of the effluent emerging from Outfall 004 tested positive for “fecal coliform, tetrachlorethylene, and trichloroethylene.” Yet again, INVISTA emphasized that it “has no reason to believe that these compounds are present in this outfall as a result of current facility operations.” INVISTA’s qualification of that statement as pertaining to “current facility operations” was later qualified when it noted that “[i]t is possible that the water quality at Outfall 004 could be influenced by an underground natural spring which surfaces out the outfall,” suggesting that the groundwater contamination beneath the Site also contaminated the surface water flowing into Polluted Creek with the effluent from Outfall 004.

110. On March 1, 2011, DHEC modified NPDES Permit #SC0002798 to reflect the purchase of the Site by Auriga Polymers, Inc. (doing business as “Indorama”).

111. On April 6, 2011, DHEC flatly rejected the conclusions of Hoechst-Celanese’s September 2010 “Site Assessment Report” and November 2010 “Remedial Effectiveness Report,” referencing four primary contaminant problems on the Site.

a. Chlorinated Solvents

Additional chlorinated solvents that have not been routinely sampled for were detected during the June site wide sampling event at levels exceeding their respective MCLs. 1,1 DCE, Cis-1,2 DCE, Trichloroethene and Tetrachloroethene were all detected in monitoring wells on-site at levels exceeding the MCLs (mostly in the southern area of the site). The source and extent of these VOCs must be determined and a plan for source delineation should be submitted to the Department.

b. Chloroform

DHEC recognized that the chloroform levels detected in MW-109 (the off-site monitoring well on the far side of Interstate 85) were nearly 12 times the acceptable limits. Furthermore, DHEC rejected the notion that the plume of chloroform was limited to “Polluted Creek.”

Chloroform has been detected at 478 ug/l in MW-109 that exceeds the MCL for chloroform of 40 ug/l and indicates that this plume has migrated off-site. Delineation of this off-site plume in the downgradient direction is needed. Please note, the Department **does not** agree that the plume is defined downgradient by the private supply wells and the stream. A plan for downgradient delineation should be submitted to the Department and another round of sodium lactate

injections should also be proposed in the source area and to address the currently unknown extent of the offsite plume.

c. 1,4-Dioxane

DHEC noted that the levels of 1,4-Dioxane detected beneath the Site were disturbingly high—**7,253 times acceptable limits**. DHEC further recognized that 1,4-Dioxane concentrations near the confluence of Cherokee Creek and the Pacolet River exceeded **3,328 times the acceptable limit** of the pollutant and emphasized, yet again, the need for studies to be completed for the potential of migration of the groundwater contamination beneath the Pacolet River.

1,4 Dioxane is present in the bedrock at levels exceeding the MCL in four separate areas of the site. The highest concentrations are found in the bedrock in the central area of the site and those levels have increased steadily and significantly since 1996. The EPA's November 2010 health based screening level for tap water for 1,4 Dioxane is 0.67 ug/l. The concentrations in bedrock are up to 4,860 ug/l in the central area of the site and are increasing. Therefore, source investigation as well as corrective action must be performed in this area.

High concentrations of 1,4 Dioxane (2,230 ug/l) have been found in the bedrock at the confluence of Cherokee Creek and the Pacolet River. No 1,4 Dioxane impact has been found in the Pacolet River in this location. However, the fracture trace study that was performed on the site back in 11/92 indicates that the fractures on the site mostly trend east-west which is perpendicular to the Pacolet River. This also may indicate that the plume is traveling in a fracture or preferential pathway under the river. Therefore, the Department is again requesting that assessment be performed on the other side of the Pacolet River to determine if the plume has gotten that far. Because high concentrations of 1,4 Dioxane persist in the central and northern and northeastern plant areas, the Department is requesting that a corrective action plan be submitted to address these hot spots.

d. DowTherm A

Finally, DHEC expressed disappointment that the “extraction” well system had removed only 77 gallons of DowTherm A over a ten year timespan of the treatment system's existence.

DowTherm A remains in the groundwater on-site at elevated levels. Extraction continues of DowTherm from MW-77 but to date, only 77 gallons of the contaminant has been removed since extraction began in 2001. This seems like a low amount. Inspection of the well in addition to determination of well efficiency should also be conducted upon receipt of this letter. Alternative corrective action technologies such as steam injection, or thermal heating should be considered to address the DNAPL and dissolved DowTherm A source issue at MW-77/MW-32 areas. An alternative analysis of source remediation options for this area and for the Boiler House/DowTherm area should be performed and submitted.

DHEC concluded that “[i]n summary, long term trends indicate the persistence of several contaminants (DowTherm A, Chloroform and 1,4 Dioxane) onsite in the area of discharge to surface water bodies and in central areas of the site. While the Department concurred with the shutdown of the recovery systems due to the apparent lack of threat to receptors, long term remedial goals consistent with Class GB Groundwater are not being met in a timely manner given current data trends.”

112. On May 31, 2011, Hoechst-Celanese responded to DHEC’s concerns pertaining to the encroaching chloroform plume by announcing their intention to conduct groundwater and surface water sampling on the premises of the “pallet manufacturing shop” first identified as a potential victim of contamination on March 21, 1994.

An access agreement has been established with the property owner for implementation of activity at this location. Our schedule will include providing notice to the owner and on-site managers prior to mobilization, but no delays are anticipated and work will proceed in a timely manner. We will implement a direct push technology (DPT) investigation to collect groundwater samples at this property. The primary flow path from the known plume is believed to be along the western side of the existing building in a roughly south direction toward the creek. Three DPT locations will be established between the MW-109 location and the creek. These locations will be placed closer to MW-109 than to the creek. Groundwater samples will be collected from each DPT location. If possible two samples will be collected from each location. One sample will be collected at bedrock or refusal depth. It is anticipated that groundwater will be encountered prior to refusal and, if so, a sample will also be collected in the saprolite zone above bedrock.

Hoechst-Celanese further declined to conduct any monitoring of potential groundwater contamination on the eastern side of the Pacolet River, insisting that “if the 1,4-Dioxane did migrate under the river in isolated fractures, the ultimate flow will still be to the Pacolet River because it is a regional drainage feature and receives discharges (sic) water from both sides of the river.” Hoechst-Celanese offered no explanation for the enormous spike in 1,4-Dioxane levels, noting it “has not owned the facility since 1998 and has no knowledge of what has occurred on the plant site past that date.” Likewise, Hoechst-Celanese could not explain why

only 77 gallons of DowTherm A had been extracted from the subsurface, but only promised to conduct further studies.

To evaluate the current conditions, the relevant wells will be resampled to gain a broader understanding of DowTherm A® in the area. Additional wells located within the central plant and northern portion of the facility but not sampled in June 2010 will also be sampled for DowTherm A™ during the 2011 event. The additional wells are identified in Table 1. A plan forward will be developed after the wells are resampled and a more complete data set is available to provide a basis for future activities.

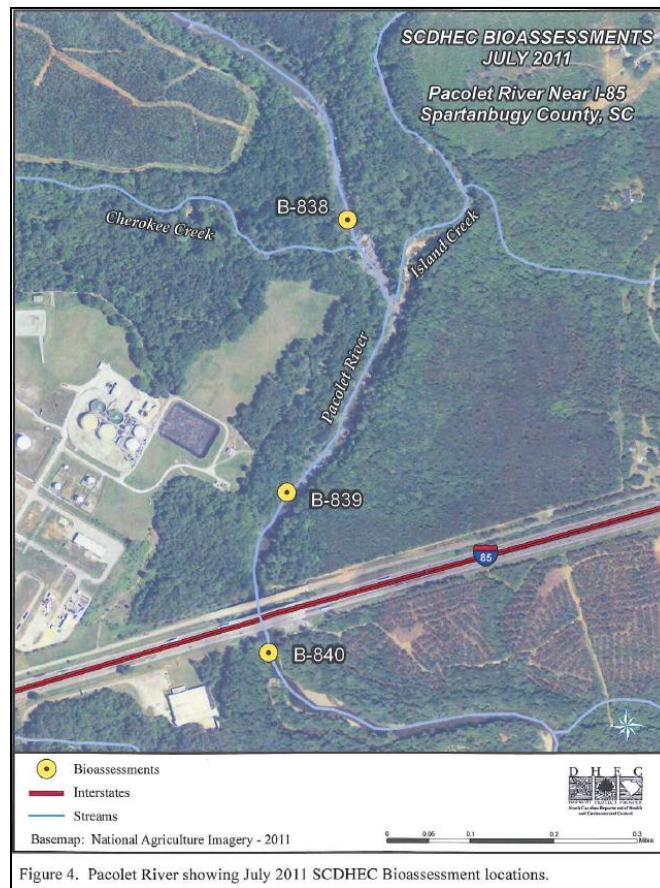
113. In defending its actions, Hoechst-Celanese relied largely upon the findings of the 2001 Preliminary Risk Evaluation of the potential threat to the health of the community and the environment. However, an internal DHEC document dated July 13, 2011 makes it clear that this information is out-of-date and inadequate to rely upon in evaluating the present threat to the community.

As discussed this morning, I have reviewed this document and cannot provide an adequate review at this time. The document was produced in Dec 2001 and, therefore, the data, methods, and screening levels used are more than 10 years old and are consequently out-of-date. Additionally, not enough data and/or information is provided in this single document to determine if the methods or parameters used were adequate for their time frame.

114. As public pressure on state government began to mount, on July 11, 2011 DHEC initiated an “aquatic macroinvertebrate bioassessment” wholly independent of Hoechst-Celanese or its agents. The purpose of the assessment was “to determine the condition of aquatic life in the section of the river adjacent to the property formally owned and operated by [Celanese]....” Unlike the vast majority of tests performed on Site, the assessment did not involve the gathering of water samples for chemical testing. Rather the assessment focused upon examining the prevalence of living organisms within the Pacolet River and Cherokee Creek.

For the bioassessment conducted in the Pacolet River on 11 July 2011, aquatic macroinvertebrate communities were examined at three different locations on the river. Aquatic macroinvertebrates are animals without a backbone living on or beneath the surface of water for at least a portion of their lives (SCDHEC 1998). These include crayfish, certain snails, mussels, aquatic worms, and aquatic insects such as mayflies. Some of these animals are very sensitive to physical or chemical harm within a river and will not be found in areas with elevated contaminants or severe hydrologic modification. Alternatively, some species are well equipped to live in rivers that are polluted or where the hydrology is impaired. By taking samples of these animals and comparing their community to reference, or non-impaired, sites an evaluation of the river can be made. Also if there is a suspected point of entry of a contaminant samples can be collected below this point and compared with a river section above the point to determine if any change has occurred.

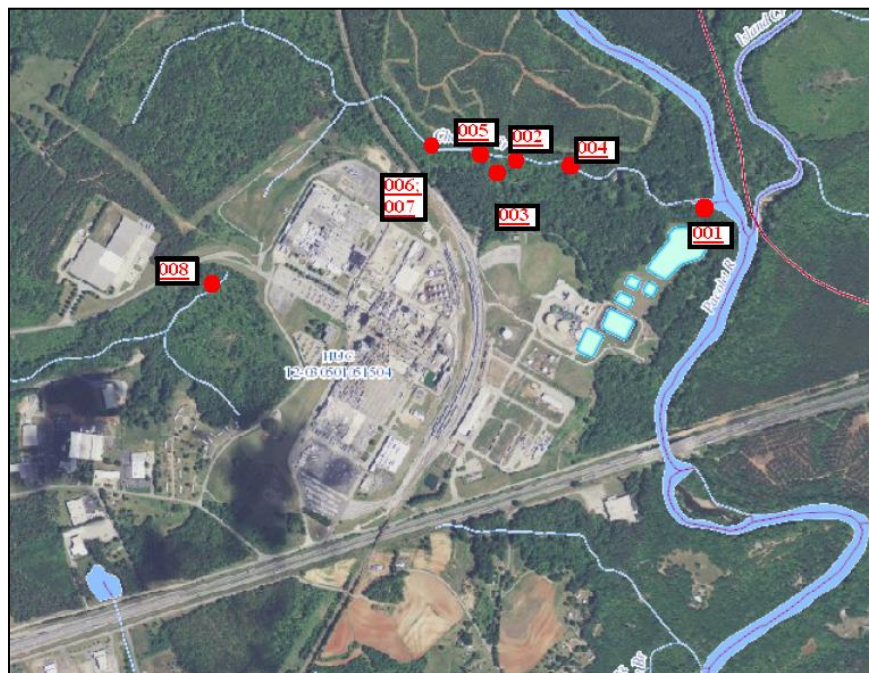
In conducting the bioassessment, three areas of the Pacolet River were tested: B-840—just below Interstate 85; B-839—between Interstate 85 and Cherokee Creek; and B-838—100 meters upriver of the confluence of Cherokee Creek and the Pacolet River.



The DHEC officials conducting the study immediately noticed the presence of chemicals when wading towards the B-838 sampling point.

While conducting the 2011 investigation an extremely strong, unfamiliar chemical odor was detected in the sediment in a backwater area of the Pacolet River at the confluence of Cherokee Creek. Subsequent analysis at this site indicated the sediment is contaminated with various organic chemical compounds.

115. Four days later, on July 15, 2011, DHEC returned to the Pacolet River to collect sediment samples along the Pacolet River and Cherokee Creek to determine the source of the “distinct chemical odor” emanating from the Creek and its confluence with the River. Seven sediment sampling stations were utilized, ranging from the confluence of the Pacolet River and Cherokee Creek (Sample 001), to approximately half-way between the Pacolet River and Outfall 001 on Cherokee Creek (Sample 004), to the approximate intersection of Cherokee Creek and Outfall 1 (Samples 002 and 003) to several hundred feet upstream from Outfall 001 (Samples 005, 006, and 007), to an unnamed tributary of Cherokee Creek to the west of and upgradient of the Site (Sample 008).



116. DHEC received the results of the Pacolet River/Cherokee Creek sediment testing on August 2, 2011. The results confirmed the suspicion of chemical contamination, revealing concentrations of pollutants that in some cases were extraordinarily high. Over twenty toxic compounds were detected in the River and Creek. Notable pollutants in each sample included (but were not limited to) the following:

*Sample 001*

1,1-Biphenyl	17,000 ug/kg
Diphenyl ether	35,000 ug/kg
Arochlor 1254 (PCB)	3.6 ug/kg

*Sample 002*

1,1-Biphenyl	11,000 ug/kg
Diphenyl ether	19,000 ug/kg
Arochlor 1254 (PCB)	370 ug/kg

*Sample 003*

1,1-Biphenyl	690 ug/kg
Diphenyl ether	1,400 ug/kg
Arochlor 1254 (PCB)	93 ug/kg

*Sample 004*

1,1-Biphenyl	3,100 ug/kg
Diphenyl ether	5,100 ug/kg
Arochlor 1254	3,200 ug/kg

*Sample 005*

1,1-Biphenyl	0
Diphenyl ether	0
Arochlor 1254 (PCB)	11 ug/kg

*Sample 006*

1,1-Biphenyl	0
Diphenyl ether	0
Arochlor 1254 (PCB)	5.9 ug/kg

*Sample 007*

1,1-Biphenyl	0
Diphenyl ether	0
Arochlor 1254 (PCB)	5.6 ug/kg

*Sample 008*

1,1-Biphenyl	0
Diphenyl ether	0
Arochlor 1254 (PCB)	0

As shown above, Samples 001 – 004 were all collected downstream from the intersection of Outfall 001 and Cherokee Creek. Notably, the contaminants within these samples are measured at vastly greater concentrations than those upstream from the Site.

117. Two days later—August 4, 2011—DHEC conducted its first public meeting in the Cannon’s Campground community to discuss the pollution on the Site and its threat to the community. The results of the sediment analysis were not revealed to the public at that time.

118. On September 2, 2011, DHEC published the results of its “Aquatic Macroinvertebrate Bioassessment” of the Pacolet River to describe any harmful effects to the environment potentially caused by the pollution emanating from the Site. Sample point B-838 (upstream of the Cherokee Creek/Paconet River confluence) and sample point B-840 (downstream of Interstate 85) revealed no notable defects, but Sample point B-839—immediately adjacent to the site—did produce some evidence of environmental harm to the organisms within the river.

While it is not reflected in the bioclassification scores one aspect of the results that warrants further investigation is the near absence of caddiflies in the family Hydropsyidae at B-839. Hydropsychids were abundant at the control site but only a single small specimen was recovered from B-839. Species within this family are common and their near absence from B-839 was a peculiarity that we noted even while on site. A preliminary literature review indicated that various organic contaminants may result in the inability of hydropsychids to properly construct their capture nets, which are essential for these filter feeders survival (Tessier et al. 2000a, Tessier et al. 2000b, Tessier et al. 2000c).

Based on these discoveries, the DHEC team determined that additional studies were necessary “to determine if aquatic life in the river near the facility has been harmed.” Studies suggested by DHEC include fish and clam tissue samples.

119. On September 6, 2011—just four days after the publication of DHEC’s bioassessment—Hoechst-Celanese publicly notified the Cannon’s Campground community of the groundwater contamination that had been known since 1988—twenty-three years before. Despite the encroaching chloroform plume, despite the remarkable spike in contaminants on the Site itself, and despite the concerning results of the DHEC bioassessment, Hoechst-Celanese chose to assure the Cannon’s Campground residents that absolutely no threat existed.

**Will the chloroform plume affect Cannons Campgrounds?** No. All tests, DHEC evaluations, and multiple reviews of local soil and groundwater characteristics show there are no groundwater conditions at the former plant that have reached or will ever reach the Cannons Campgrounds area.

120. On September 23, 2011, Hoechst-Celanese finally proposed to sample groundwater and surface water at the “pallet manufacturing shop” to the south of Interstate 85 in order to ascertain whether contaminants migrated onto that private land.

The purpose of this work plan is to describe the activities and procedures for investigation of potential chloroform migration onto the Bruckner Road property located in Spartanburg South Carolina. The property is located across Interstate I-85 from the Auriga production facility (formerly INVISTA, formerly KoSa). The initial activities will focus on direct push technology (DPT) to investigate groundwater in shallow saprolite and, where possible, deep saprolite near the surface of bedrock. Additional investigation into bedrock may be included in subsequent work based on the findings of this activity.

121. On October 26, 2011, DHEC informed Hoechst-Celanese of the results of its sediment testing of Cherokee Creek. The test results indicated the presence of dangerous concentrations of toxic chemicals within the sediment.

A summary of the Department's Cherokee Creek Sampling analytical results is attached; our understanding is that the Hoechst's consultants have already obtained a copy of the data report through Freedom of Information. Among other chemicals detected in stream sediments, a significant concentration of 1,1 biphenyl (one of the components of Dowtherm A), was detected in stream sediment at several locations in Cherokee creek (up to 17 mg/kg at sample location 1 and 11 mg/kg at sample location 2 amongst other detections). Please note that the other major component of Dowtherm A, Diphenyl Ether was also detected in a Library Search with an estimated quantification value at several locations as well. Arochlor 1254 was detected at several sediment sample locations including one sample (location 4) at a detection level of 3.2 mg/kg. The sources of this sediment impact need to be determined (i.e. groundwater plume discharge, surface water discharge etc.).

It is unknown when "Hoechst's consultants" gained access to this data "through Freedom of Information" or whether Hoechst-Celanese was well aware of these results when it contacted the Cannon's Campground community.

As a result of these findings, however, DHEC requested that Hoechst-Celanese's consultants conduct a more thorough bioassessment of the Pacolet River and Cherokee Creek.

122. In the meantime, Hoechst-Celanese agents received the results of off-site groundwater and surface water testing at the "pallet manufacturing shop" on November 2, 2011. The investigation utilized eight temporary sampling wells drilled into the ground surrounding the shop and seven sampling points of surface water from Polluted Creek. The investigation tested for three chemicals in the groundwater beneath the shop and the surface water of Polluted Creek: acetone, 1,4-Dioxane, and chloroform. The investigation revealed chloroform existing at the bedrock in seven of eight sampling wells and exceeding maximum contaminant levels in six of eight sampling wells. Likewise, acetone was present in three sampling wells, though at lower levels.

1,4-Dioxane, however, provided startling results. Though the contaminant was thought to be concentrated primarily on the northern side of the property, 1,4-Dioxane was present at the

bedrock of one sampling well in an amount that exceeds the maximum contaminant level by ten times. The chemical also appeared in all seven surface water samples at concentrations four to five times acceptable levels, suggesting on-going discharge of the contaminant from the Site into surrounding surfacewater.

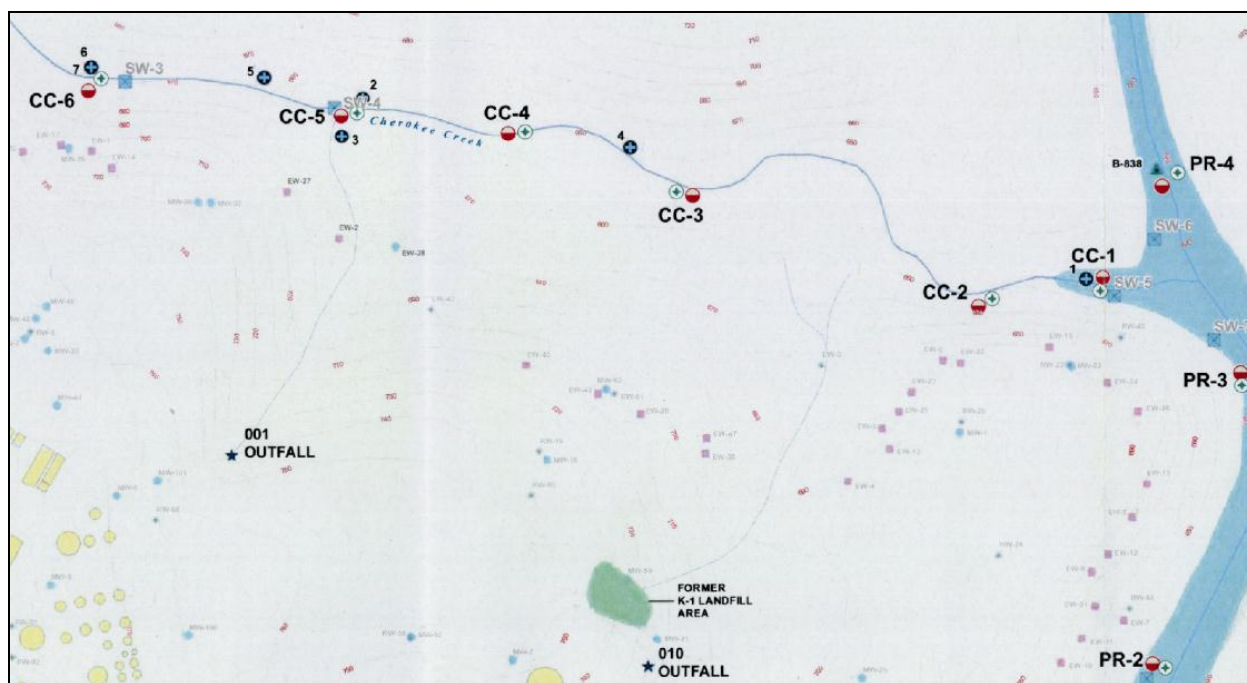
123. On November 9, 2011 DHEC released a variety of private well testing information to Cannon's Campground residents. Numerous private drinking wells on the southern side of "Polluted Creek" tested positive for contaminants likely emanating from the Site. Nearest to Polluted Creek, DHEC informed one Cannon's Campground family of well testing results showing lead in excess of acceptable limits, while also evidencing traces of chloroform and methyl-t-butyl ether (MTBE). Several hundred yards to the south, another private drinking well tested positive for tetrahydrofuran, a component chemical in the polymer manufacturing process that the EPA has recently described as possessing "'suggestive evidence of carcinogenic potential' by all routes of exposure." Finally, one mile to the south of the Site, four drinking wells tested positive for 1,4-Dioxane, the contaminant existing at extraordinarily high levels beneath the Site.

124. In February of 2012, Hoechst-Celanese contractors met with DHEC to discuss plans for further delineation of the contaminant plume extended to the south of Interstate 85. An integral piece of the proposed plan was drilling two permanent bedrock monitoring wells 20 to 50 feet into the bedrock on the far side of Polluted Creek in order to determine if contamination was migrating beneath the creek through the fractures in the bedrock. DHEC approved the drilling of these wells in August of 2012, the drilling was completed in December of 2012, and the first groundwater samples from these bedrock wells were obtained on January 8, 2013. The

location of the permanent bedrock monitoring wells is shown below in the right-of-way of Bruckner Road, to the immediate left of the Easler property.



125. Before the sampling of these monitoring wells on the premises of the “pallet manufacturing shop” was conducted, however, in October of 2012 Hoechst-Celanese conducted its comprehensive bioassessment of the Pacolet River and Cherokee Creek. Important parts of this assessment were securing sediment samples, invertebrate samples, and fish tissue samples from areas of Cherokee Creek that corresponded with DHEC’s 2011 analysis. Points of sampling are shown on the map below.

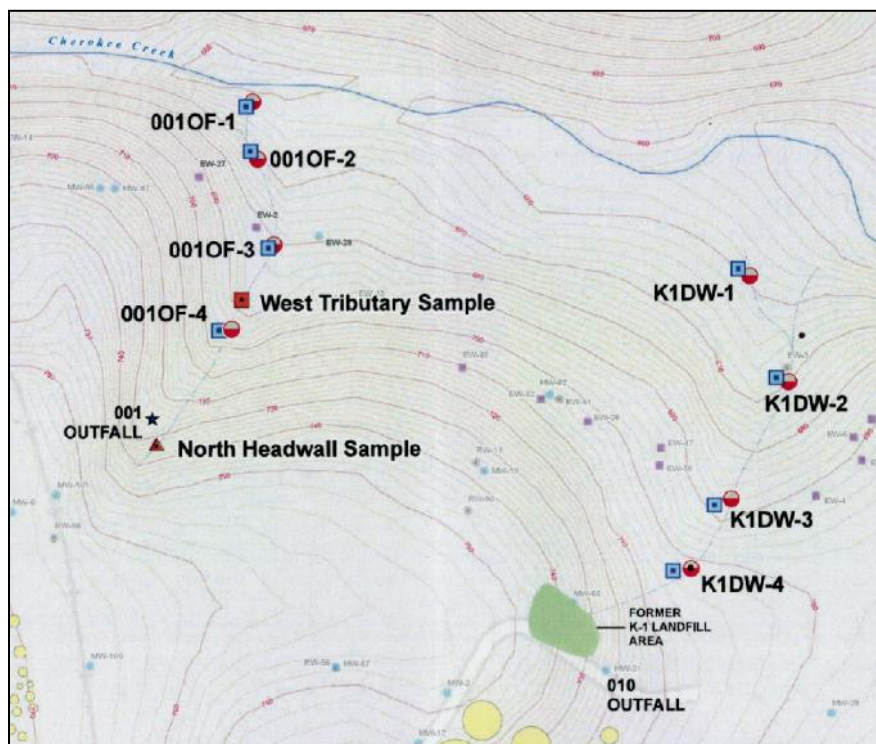


The bioanalysis of points CC-4 and CC-3—which fall between the drainage ditches stemming from Outfall 001 and Outfall 010—indicated below average support of aquatic life. Hoechst-Celanese’s agents, however, dismissed this result as the result of “natural stream conditions.”

126. The final draft of Hoechst-Celanese’s bioassessment of Cherokee Creek and the Pacolet River was delivered to DHEC on January 4, 2013. One week later, January 11<sup>th</sup>, DHEC’s Aquatic Biology Section produced an internal memorandum reviewing Hoechst-Celanese’s report. The memorandum found that the absence of macroinvertebrates within Cherokee Creek at points between the entry of Outfall 001 into the creek and the creek’s confluence with the Pacolet River “could not be explained by habitat conditions alone.” Though the memorandum stopped short of laying the blame for the damage to the creek on the Hoechst-Celanese site, it stated that the cause of the damage was “unknown at this time.”

127. Ironically, just ten days later on January 21, 2013, AECOM delivered to DHEC the results of sampling of the 001 Outfall Ditch and K-1 Landfill Drainage Way brought about in response to the July 2011 tests of Cherokee Creek that raised the possibility of the Site damaging

neighboring waterways. AECOM's sampling of both surface water and sediment in these two drainage ditches confirmed the Site as at least one source of contamination within Cherokee Creek.



More specifically, the surface water emanating from Outfall 001 tested positive for both 1,4-Dioxane (0.221 mg/L) and diphenyl ether (.0445 mg/L) while the sediment within this outfall ditch was positive for 1,1-biphenyl (1.25 mg/kg), diphenyl ether (3.34 mg/kg), 1,4-Dioxane (.0345 mg/Kg), and PCB Aroclor 1260 (.101 mg/Kg). Meanwhile, the sediment tested at the K-1 Landfill Drainage Way was positive for PCB Aroclor 1260 (.0872 mg/Kg). Despite these findings aligning with those from the Cherokee Creek study, AECOM insisted that “the site is not a continuing source of measureable impact to the surface waters adjacent to the site.”

128. On February 5, 2013, however, DHEC's Aquatic Biology Section produced an internal memorandum detailing findings of the PCB Aroclor 1260 in fish tissue sampled from Cherokee Creek and the Pacolet River. But these findings were not made available to the public

because the levels of this PCB within the fish tissue “were below the human health screening threshold used by SCDHEC to issue fish consumption advisories.” Again, however, the presence of the PCBs within the fish tissue coincided with the same compounds existing both on the Site and within Cherokee Creek itself.

129. As the extent of the contamination to Cherokee Creek was becoming known to DHEC, bedrock groundwater sampling results stemming from the far side of Polluted Creek to the south of the Site began to arrive. On February 18, 2013, Hoechst-Celanese contractors reported that bedrock wells drilled into the right of way of Bruckner road immediately adjacent to the Easler property revealed the migration of 1,4-Dioxane (3.6 ug/L), acetone (118 ug/L) and chloroform (5.74 ug/L) beneath Polluted Creek.

130. One month later, on March 27, 2013, Jay Easler requested permission to drill four monitoring wells on his property. These proposed wells were not “bedrock” monitoring wells, however, but were designed to investigate potential contamination above the bedrock. After approval, the monitoring wells showed no evidence of contamination existing in groundwater above bedrock, suggesting that the existing contamination south of Polluted Creek was navigating through the fractured bedrock in a nearly unpredictable manner.

131. Based upon the information available today and summarized above, the following pollutants have been discharged by the entities described in paragraphs four through fifteen into the groundwater and/or surfacewater of the Cannon’s Campground community.

Phenolic compounds – a mixture of phenol and tetrachloromethane  
ethylene glycol (EG)/ diethylene glycol (DEG)  
polyethylene glycol  
1,4-Dioxane  
Tetrachloroethane (PCE)  
chloromethane  
toluene

methylene chloride  
 trichloroethane (TCE)  
 acetone  
 chloroform  
 DowTherm A (components are 1,1 biphenyl and biphenyl ether)  
 acetaldehyde  
 1,1-dichloroethane (1,1-DCE)  
 1,2-dichloroethane  
 1,1,1-trichloroethane  
 1,1,2,2-trichloroethane  
 acetic acid  
 metals: cadmium, chromium, lead, manganese  
 arsenic  
 cis-1,2-dichloroethane (cis-1,2-DCE)  
 lead  
 fecal coliform  
 1,1-biphenyl  
 diphenyl ether  
 arochlor 1254 (PCB)  
 methyl-tert-butyl ether (MTBE)  
 tetrahydrofuran

The presence of these chemicals in the environment constitutes an imminent and substantial danger to the health of the community and to the environment itself.

**V. Imminent and Substantial Danger to the Environment**

132. The imminent and substantial danger to the environment of the Cannon's Campground community is evident from the recently recorded levels of contaminants in three bodies of water: Cherokee Creek, Polluted Creek, and the Pacolet River.

**a. Cherokee Creek**

133. The extent of the pollution of Cherokee Creek was discovered by chance during the July 2011 macroinvertebrate study of the Pacolet River.

While conducting the 2011 investigation an extremely strong, unfamiliar chemical odor was detected in the sediment in a backwater area of the Pacolet River at the confluence of Cherokee Creek. Subsequent analysis at this site indicated the sediment is contaminated with various organic chemical compounds.

The results of DHEC's subsequent testing of the sediment of Cherokee Creek detected approximately twenty individual contaminants within the sediment. The Plaintiff asserts all of these contaminants present an immediate and substantial danger to the environment. Most prominently, however, are three contaminants that exist at extremely high and lethal levels: 1,1-Biphenyl, Diphenyl Ether, and Arochlor 1254.

### **1,1-Biphenyl**

134. According to the EPA, "In laboratory studies, biphenyl is highly toxic to aquatic organisms; an acute toxicity value of <1 mg/L has been reported." The EPA reports 1,1-Biphenyl acute toxicity values for specific aquatic organisms as follows:

Daphnids: 0.36 mg/L

Rainbow Trout: 1.3 mg/L

LC<sub>50</sub> values (or the median lethal dose required to kill half the members of a tested population) have been reported as follows:

Rainbow Trout: 1.5 mg/L

Bluegill: 4.7 mg/L

Sheepshead Minnow: 4.6 mg/L

Fathead Minnow: 6 mg/L

[Source: 1,1-Biphenyl Fact Sheet, December 1994, <http://www.epa.gov/chemfact/biphe-sd.txt>]

135. The sediment sampling of Cherokee Creek that occurred in July of 2011 produced three samples that were positive for 1,1-Biphenyl in excess of these limits: 17 ppm (Sample

001), 11 ppm (Sample 002), and 3.1 ppm (Sample 004). As a result, the presence of 1,1-Biphenyl within Cherokee Creek constitutes an immediate and substantial danger to the environment.

### **Diphenyl ether**

136. As of 2010, the EPA has recognized the following LC<sub>50</sub> levels for diphenyl ether (also known as “diphenyl oxide”).

Fish	4.2 mg/L
Aquatic Invertebrates	1.7 mg/L
Algae	2.5 mg/L

[Source: EPA Hazard Characterization Document, March 2010,  
[http://www.epa.gov/hpvis/hazchar/101848\\_Diphenyl%20oxide\\_March2010.pdf](http://www.epa.gov/hpvis/hazchar/101848_Diphenyl%20oxide_March2010.pdf)]

137. The July 2011 sediment sampling of Cherokee Creek produced diphenyl ether measurements of 35 ppm (Sample 001), 19 ppm (Sample 002), and 5.4 ppm (Sample 004). All of these levels greatly exceed the accepted LC<sub>50</sub> levels pertaining to aquatic organisms. As a result, the presence of diphenyl ether within Cherokee Creek constitutes an immediate and substantial danger to the environment. Follow-up testing of Outfall 001 in September of 2012 revealed measurable levels of Diphenyl Ether in the surface water emanating from the Site itself and emptying into Cherokee Creek.

### **Arochlor 1254**

138. Arochlor 1254 is a polychlorinated biphenyl (commonly referred to as a “PCB”) that has been outlawed in the United States since the 1970s. The EPA recognizes that it “bioaccumulate[s] through the food chain, with some of the highest concentrations found in fish.” [Source: EPA Hazard Summary, Revised January 2000,  
<http://www.epa.gov/ttn/atw/hlthef/polychlo.html>]

139. Measured LC<sub>50</sub> levels pertaining to aquatic organisms exposed to Arochlor 1254 include the following:

Rainbow Trout	27 ug/L
Crayfish	100 ug/L
Glass Shrimp	3 ug/L

[Source: Mayer, Mehrle, and Sanders, “Residue Dynamics and Biological Effects of Polychlorinated Biphenyls in Aquatic Organisms,” Archives of Environmental Contamination and Toxicology, Vol. 5, 501-511 (1977).]

140. The July 2011 sediment sampling of Cherokee Creek produced Arochlor 1254 measurements of 3.6 ppb (Sample 001), 370 ppb (Sample 002), 93 ppb (Sample 003), 3,200 ppb (Sample 004), 11 ppb (Sample 005), 5.9 ppb (Sample 006), and 5.6 ppb (Sample 007). All of these levels greatly exceed the accepted LC<sub>50</sub> levels pertaining to at least some (if not all) aquatic organisms. As a result, the presence of Arochlor 1254 within Cherokee Creek constitutes an immediate and substantial danger to the environment.

#### **b. Polluted Creek**

141. October 2011 surface water sampling of Polluted Creek, discussed above, revealed measurements of 1,4-Dioxane in all seven surface water samples obtained. The measurements of 1,4-Dioxane ranged from 0.00261 mg/L to 0.00304 mg/L. The “Maximum Contaminant Level” of 1,4-Dioxane recognized by the Environmental Protection Agency is 0.00067 mg/L. As a result, the contamination levels of 1,4-Dioxane within Polluted Creek are four to five times the acceptable amount.

142. The EPA’s measured LC<sub>50</sub> levels for aquatic species are as follows.

Bluegill	.00012 mg/L
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[Source: EPA ECOTOX database,  
[http://cfpub.epa.gov/ecotox/report.cfm?type=long&record\\_number=603191](http://cfpub.epa.gov/ecotox/report.cfm?type=long&record_number=603191)]

Rainbow Trout .000472 ug/L

[Source: EPA ECOTOX database,  
[http://cfpub.epa.gov/ecotox/report.cfm?type=long&record\\_number=75238](http://cfpub.epa.gov/ecotox/report.cfm?type=long&record_number=75238)]

As noted above, the 1,4-Dioxane levels detected within Polluted Creek vastly exceed these amounts. As a result, the presence of 1,4-Dioxane within Cherokee Creek constitutes an immediate and substantial danger to the environment.

143. Furthermore, pursuant to S.C. Code Regs. 61-68, all freshwaters are to be free of “garbage ... or other refuse.” S.C. Code Regs. 61-68. Despite this fact, all owners of the site routinely have discharged polyester chips into Polluted Creek via Outfall 004 in violation of South Carolina law. The picture below, taken on March 7, 2012 on the shores of Polluted Creek, exhibits recent polyester chip pollution of that body of water. These chips continue to appear in the sediment of Polluted Creek, just as they have for decades.



**c. Pacolet River**

144. The Pacolet River was the original focus of the July 2011 macroinvertebrate study conducted by DHEC. Station B-839 was located slightly upstream of Outfall 002 (from which the Site's treated wastewater flows) but still adjacent to the Site.

Station: B-839 (Figure 7)

Latitude: 35.035138297

Longitude: -81.849517606

Name: Pacolet River approximately 50 to 100 meters upstream of Auriga Polymers NPDES Discharge number 2. Spartanburg County SC, USA.

Description: The Pacolet River at this location consisted of a long run with water rolling over the numerous boulders and cobble. The cascades, near B-838, were absent at B-839 and the large pools at B-838 were not as abundant at B-839.

Other aspects however, including the eroded yet heavily vegetated banks, were similar to the control site. The water was clear and had no unusual foam or smells at the time of sampling.

145. The DHEC sampling team noted a "near absence of caddiflies" in the sampling at this Station, which starkly contrasted with results at stations upstream and downstream from the facility.

While it is not reflected in the bioclassification scores one aspect of the results that warrants further investigation is the near absence of caddiflies in the family Hydropsychidae at B-839. Hydropsychids were abundant at the control site but only a single small specimen was recovered from B-839. Species within this family are common and their near absence from B-839 was a peculiarity that we noted even while on site. A preliminary literature review indicated that various organic contaminants may result in the inability of hydropsychids to properly construct their capture nets, which are essential for these filter feeders survival (Tessier et al. 2000a, Tessier et al. 2000b, Tessier et al. 2000c).

146. As noted by DHEC's report, caddiflies can be detrimentally affected by organic contaminants (such as those present in extreme quantities in the vicinity of the Pacolet River). Thus the results of the macroinvertebrate study suggest the contaminants on-Site constitute an immediate and substantial danger to the environment of the Pacolet River.

## **VI. Imminent and Substantial Danger to the Health of the Community**

147. All chemicals referenced within this notice are toxic contaminants that represent a threat to human health through either ingestion of surface water, ingestion of groundwater,

ingestion of aquatic organisms exposed to the contaminants (such as fish or crayfish), or dermal exposure to surface water. The parties upon whom this notice is served have created an imminent and substantial danger to the health of the Cannon's Campground community and neighboring communities via two pathways: one, the bodies of water adjacent to the Site; and two, the groundwater migrating beneath the Site.

148. The 2001 Preliminary Risk Assessment prepared by Celanese also recognized these potential pathways of exposure.

Various releases and disposal practices over the life of the facility have contributed chemical substances to environmental media at the site. The area of concern identified at the site is a composite plume of groundwater contaminants originating on the site. Human and ecological exposure to site-related constituents may potentially occur through contact with surface water and sediment of the Pacolet River and Cherokee Creek and also through direct contact with groundwater migrating off-site to the south.

The Plaintiff asserts that the presence of all toxic contaminants referenced herein represents a threat to human health both individually and collectively. Without any further discovery whatsoever, however, specific threats to human health are identified below.

**a. Danger posed by bodies of water**

149. Classified as “freshwaters” under S.C. Code Regs. 61-68, Cherokee Creek, Polluted Creek, and the Pacolet River must be “suitable for primary and secondary contact recreation and as a source for drinking water supply after conventional treatment.” As indicated below, however, the contaminants registered within these bodies of water render them unsuitable for drinking and thus represent an imminent and substantial danger to the health of the community. The bodies of water are also unsuitable for fishing and certain areas of sediment beneath the waters represent a threat to health via dermal exposure.

**Cherokee Creek**

150. Sediment Sample 004, taken in July of 2011 from the bed of Cherokee Creek approximately halfway between Outfall 001 and the Pacolet River, exhibited levels of contamination that exceed the Environmental Protection Agency's oral reference dosage (RfD), the estimate of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

<i>Contaminant</i>	<i>Oral RfD</i>	<i>Presence in Sediment</i>
Arochlor 1254	.00002 mg/kg-day	3.2 mg/kg
1,1 Biphenyl	.05 mg/kg-day	3.1 mg/kg

[Source: EPA Integrated Risk Information System] As a result, the presence of these contaminants within Cherokee Creek constitutes an immediate and substantial danger to the health of the community.

#### **Polluted Creek**

151. Surface water samples taken from Polluted Creek in October of 2011 indicated the presence of two contaminants: 1,4-Dioxane and chloroform. The samples neared the EPA's recognized RfD for each contaminant.

<i>Contaminant</i>	<i>Oral RfD</i>	<i>Presence in Surface Water</i>
1,4-Dioxane	.03 mg/kg-day	.00304 mg/L
Chloroform	.01 mg/kg-day	.00585 mg/L

[Source: EPA Integrated Risk Information System] In addition to the RfD measurements, however, the EPA has compiled "National Recommended Water Quality Criteria" containing recommendations for the protection of aquatic life and human health in surface water as applied to approximately 150 pollutants. The list notes that chloroform levels exceeding .0057 mg/ L cause an increased risk of cancer in humans consuming both water and organisms (such as fish) from the body of water. [Source:

<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>] As noted above, the chloroform detected in Polluted Creek exceeds this amount.

152. As a result of the presence of these contaminants within Polluted Creek, there exists an immediate and substantial danger to the health of the community.

### **Pacolet River**

153. DHEC's macroinvertebrate study team indicated that a "strong chemical odor" emanated from the confluence of the Pacolet River and Cherokee Creek when the team waded through this area of the water in July of 2011. The subsequent sediment sampling of this confluence (Sample 001) produced results exceeding RfD levels for two toxic pollutants.

<i>Contaminant</i>	<i>Oral RfD</i>	<i>Presence in Sediment</i>
Arochlor 1254	.00002 mg/kg-day	.0036 mg/kg
1,1 Biphenyl	.05 mg/kg-day	17 mg/kg

[Source: EPA Integrated Risk Information System] As a result, the contaminant levels within the Pacolet River constitute an immediate and substantial threat to the health of the community.

#### **b. Danger posed by groundwater**

154. Extending potentially miles from the Site is the threat to human health posed by the potential for exposure to toxic contaminants in migrating groundwater. Hoechst-Celanese's 2001 Preliminary Risk Assessment identified this threat as the primary risk to the surrounding community.

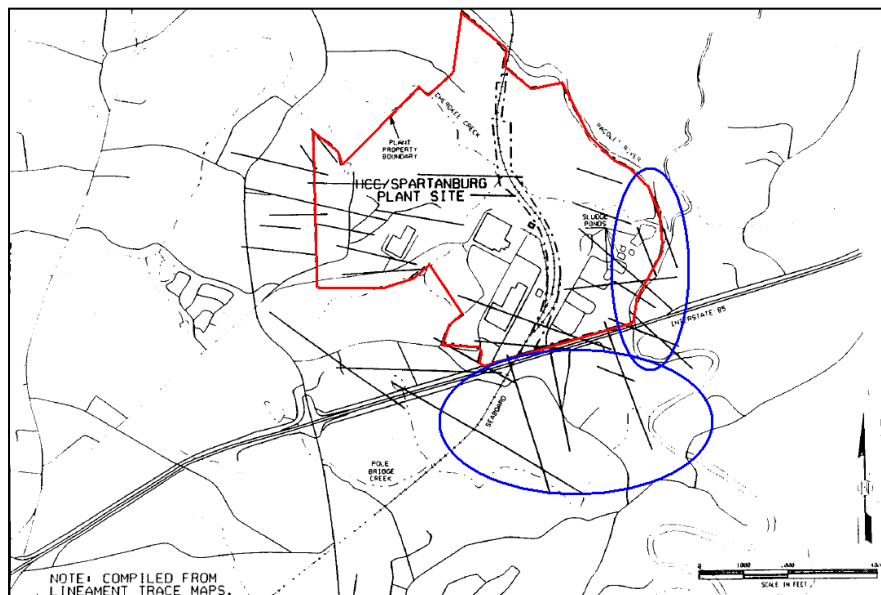
Based on this analysis, no COPCs were retained for either the Cherokee Creek or the Pacolet River. However, final human health COPCs were identified based on potential direct exposure to groundwater migrating off-site to the south. The final COPCs were: lead, 1,4-dioxane, chloroform, 1,1,2,2-tetrachloroethane, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and methylene chloride.

The Plaintiff asserts that the presence of all of these chemicals in groundwater migrating off-site in any direction constitutes an immediate and substantial danger to the threat of the community.

155. Migration of the contaminants to the south (which has been confirmed) and to the east (which is suspected, but not yet confirmed) stems from fractures within the bedrock beneath the Site and the surrounding area. As noted above, the possibility of such fractures directing groundwater flow has been noted by DHEC and Hoechst-Celanese as early as 1994.

Numerous lineaments can be traced across the Pacolet River to the east and southeast from the property boundary. These lineaments could represent fractures which could provide off-site discharge of groundwater to the Pacolet River and possibly beyond the river.

156. In fact, the fracture trace study conducted by Hoechst-Celanese in 1994 revealed its prediction of numerous fractures traveling to the south (beyond Interstate 85 and deep into the Cannon's Campground residential area) and to the east (beneath the Pacolet River and towards the town of Cowpens). A map of these predicted bedrock fractures are circled below, leading from the Site.



157. Contamination in groundwater beneath private property has already been confirmed in numerous locations. 1,4-Dioxane—a known by-product of the production process on the Site—has been detected in the surface water of Polluted Creek, a temporary monitoring well nearby Polluted Creek, and four private drinking wells approximately one mile to the south of the Site. Lead, methyl tert-butyl ether, and chloroform have been detected in a drinking well within two hundred yards of the southern boundary of the Site. Additionally, temporary monitoring wells immediately to the east of this contaminated drinking well also tested positive for chloroform. Finally, a drinking well approximately one-half mile to the south of the Site has tested positive for tetrahydrofuran, a component chemical of the polyester manufacturing process.

158. Despite repeated requests by DHEC over the last twenty years, Hoechst-Celanese steadfastly has declined to conduct a comprehensive analysis of off-Site migration of contaminated groundwater. One monitoring well was installed in the right-of-way of Interstate 85 in 2001. That well has consistently tested positive for contamination. No monitoring wells have been installed to the east of the Pacolet River. Only temporary monitoring wells were installed on the premises of the “pallet manufacturing shop”—but not until August of 2011. Almost all of these wells tested positive for contamination.

159. The near absence of off-Site testing greatly increases the community’s difficulty in analyzing the precise nature of the threat to its health. No monitoring has been conducted to the north of the Site or to the west, leaving residents of those areas with no information whatsoever regarding their potential exposure to lethal contaminants whose presence is confirmed only several hundred feet away. What is clear, however, is that the contaminated groundwater beneath the Site—which in some instances is thousands of times greater than the

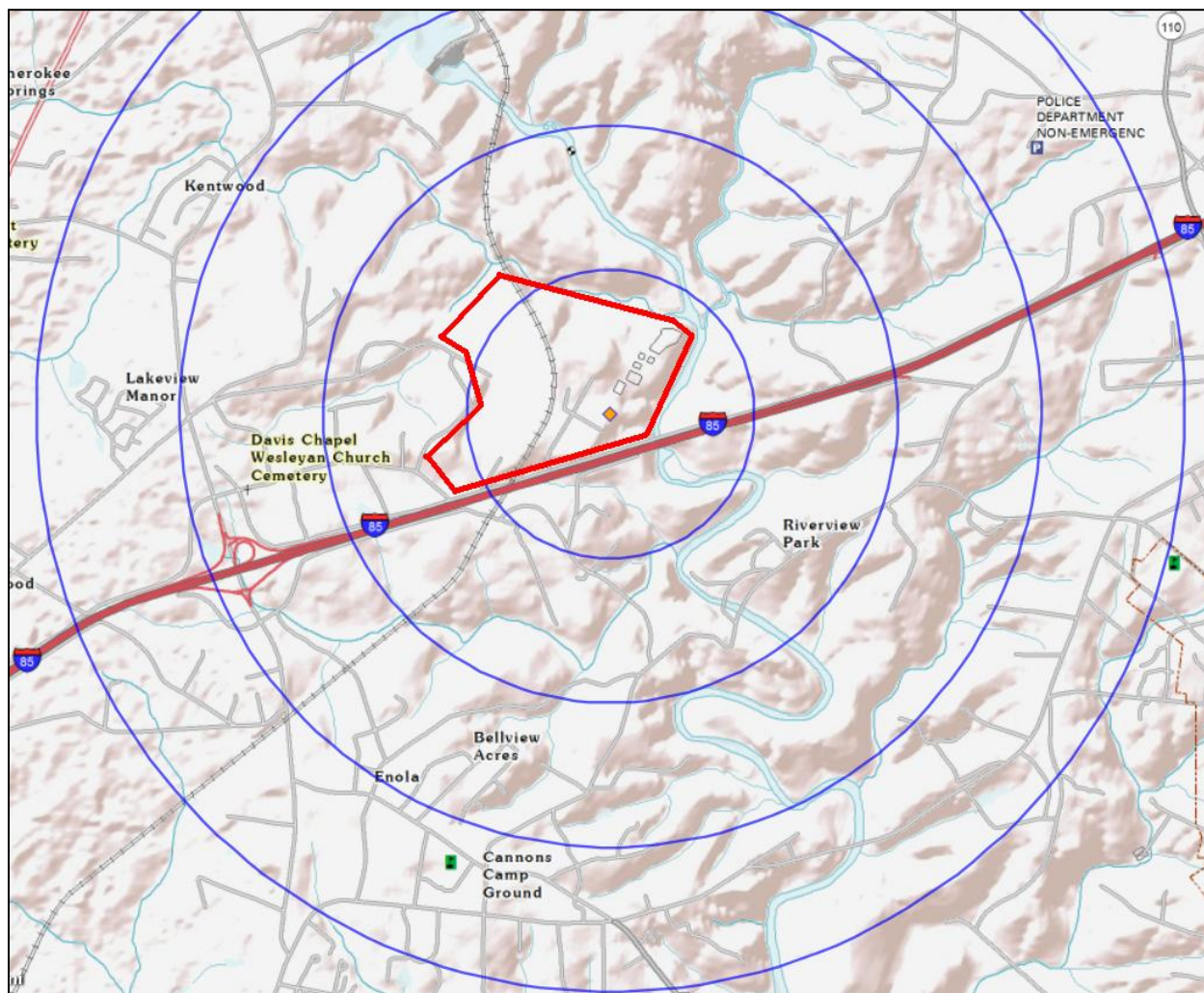
MCLs established by DHEC and the EPA—now represents an immediate and substantial threat to the health of the Cannon’s Campground community.

160. Just two examples of such a threat are the confirmed presence of 1,4-Dioxane and chloroform in groundwater off-Site. As Hoechst-Celanese recognized in 1994, 1,4-Dioxane is a “probable human carcinogen” that can also cause hepatic and renal damage in humans. The contaminant has a “high dispersion capacity” within groundwater and can produce “broad fan-shaped plumes.” Because of the near complete lack of hydrogeological investigation off-Site, it is impossible to predict the extent of the 1,4-Dioxane migration. However, the Environmental Protection Agency has recorded 1,4-Dioxane plumes extending up to five miles in length. [Source: Mohr, Environmental Investigation and Remediation: 1,4-Dioxane and Other Solvent Stabilizers, p. 408]

161. Hoechst-Celanese has also recognized that chloroform is a “probable human carcinogen” with “relatively high mobility in groundwater.” It may also exist as a “Dense Non-Aqueous Phase Liquid” (DNAPL) that will sink to the bedrock and migrate through fractures in the bedrock’s surface. As shown in the chart below, DNAPL migration of chlorinated solvents similar to chloroform has been measured to travel as far as five kilometers (3.1 miles) in sometimes wildly varying pathways, making accurate prediction of contaminant plumes nearly impossible without extensive monitor well emplacement.

162. Below is a radial map demonstrating half-mile distances from the center of the groundwater contamination—the western half of the Celanese Site. As the radii depict, even relatively short distances from the plant encompass a large percentage of the homes in the Cannon’s Campground neighborhood. The furthest detections of 1,4-Dioxane (shown above), for example, extend more than one mile from the source of the contamination. Thus there is a

significant chance that many hundreds of tracts of land and an unknown number of citizens have been impacted by the polluted groundwater.



163. Of even greater concern to the Cannon's Campground community is the fact that contamination levels on-Site are increasing. One year ago, DHEC emphasized the extraordinarily high levels of 1,4-Dioxane present on-Site that appear to have been increasing during the last several years. Hoechst-Celanese has distanced itself from any responsibility for these increases, stating it "has not owned the facility since 1998 and has no knowledge of what has occurred on the plant site past that date. On the basis of this information, the Plaintiff asserts that the

industrial operations on the Site continue to be a source of groundwater degradation and the threat to the health of the citizens of Cannon's Campground.

**c. Danger posed by inadequate monitoring and delineation of the threat**

164. Though Hoechst-Celanese has conducted a system of groundwater monitoring on-site for over a quarter century, its refusal to institute comprehensive review of possible groundwater contamination throughout the Cannon's Campground community constitutes an imminent and substantial threat to the health of the community.

Properly located monitoring wells contribute definitive evidence of contaminants in groundwater. They can prevent widespread groundwater pollution by prompting timely cleanup efforts. Conversely, a poor configuration of wells wastes money and instills a false sense of security.

Hudak, P.F., "Procedure for Upgrading Contaminant-Detection Networks in Aquifers," Bull. Environ. Contam. Toxicol. (2000) 65:62-69.

165. Despite the confirmation of massive amounts of 1,4-Dioxane pollution immediately adjacent to Cherokee Creek and the Pacolet River, Hoechst-Celanese has taken no steps whatsoever to analyze whether contaminants have migrated either to the north or the east of the site. As early as November of 1992, Hoechst-Celanese was aware of the risk of off-site migration of the groundwater contamination emanating from its facility. (See Paragraph 62, above) Yet, while publicly touting the efforts it has put forth on-site, Hoechst-Celanese has done nothing to analyze the potential threat of its contamination off-site.

166. Similarly, to the south, the confirmed presence and off-site migration of DNAPL compounds (such as chloroform) has produced little action. As shown above, Hoechst-Celanese did not install its first off-site monitoring well until October of 2001—years after DHEC first requested such studies. Even then, EPA regulations require the installation of at least three monitoring wells down-gradient of a waste management area. 40 C.F.R. 265.91(a)(2).

Typically, the minimum number of wells specified for interim status facilities in 40 CFR §265.91(a) will not be sufficient for achieving the performance objectives of a detection monitoring system because site hydrogeology is too complex or the hazardous waste unit is too large.

“RCRA Ground-water Monitoring: Draft Technical Guidance,” U.S. Environmental Protection Agency (November 1992), § 5.1.1. The fractured bedrock of the Site and surrounding area and the unpredictable nature of DNAPL transportation underscores the gross inadequacy of the one monitoring well installed off-site to track the migration of Celanese’s chloroform plume. Indeed, seven of the eight temporary monitoring wells installed in August of 2011 (referenced in Paragraph 12) have confirmed the continued migration of chloroform towards residential areas.

167. Hoechst-Celanese’s recent efforts to install two monitoring wells south of Polluted Creek continue the pattern of paltry response to known contamination. In fact, the bedrock groundwater sampling of these newest monitoring wells confirms that contaminants have migrated south of the Creek, presumably through the aforementioned bedrock fractures.

168. The minimal analysis that has been conducted off-site in residential areas has confirmed the presence of contaminants within drinking well water identical to contaminants existing in groundwater on-Site. Because of the paucity of analysis conducted in the Cannon’s Campground community, however, Hoechst-Celanese has left the community with vastly more questions than answers pertaining to the safety of their neighborhoods.

## **VII. Class Action Allegations**

169. The Plaintiff seeks to represent a class of persons, certified pursuant to Fed. R. Civ. P. 23(a), 23(b)(2), and 23(b)(3), defined as follows:

The Cannon’s Campground community. To wit: all persons residing or owning real property within a two mile radius of the former Hoechst-Celanese manufacturing plant located adjacent to

the intersection of Interstate 85 and the Pacolet River in Spartanburg County, South Carolina.

170. The Defendants' actions or omissions in violation of the Resource Conservation and Recovery Act apply generally to the proposed class. The injuries sought to be redressed—imminent and substantial danger to the health of the Cannon's Campground community and to the local environment—are injuries of the class as a whole, rather than injuries suffered individually. As a result the interests of the members of the proposed class in redressing these injuries are cohesive and homogenous without meaningful divergence.

171. The equitable relief requested within this complaint will be uniformly applicable to the members of the proposed class, thus obviating any inquiry into individual circumstances or characteristics of class members.

172. The monetary damages requested within this complaint will be uniformly applicable to the members of the proposed class in that such damages will be calculated in a uniform, formulaic manner that will not require individualized proof or analysis of damages claims.

173. Members of the proposed class are so numerous that joinder of all members is impracticable, with over one thousand individual tracts of real estate falling within the proposed boundaries of the class and hundreds, if not thousands, of individual residents living within the proposed boundaries.

174. The questions of law and fact raised by the allegations contained herein are common to the class.

175. The claims asserted by the Plaintiff are typical of the claims of his fellow class members in that the rights Plaintiff alleges have been violated are rights enjoyed by all members

of the Cannon's Campground community and the remedies requested will, likewise, be enjoyed by all members of the Cannon's Campground community.

176. The Plaintiff will fairly and adequately protect the interests of the class. The Plaintiff is a respected citizen of the community, is aware of his duties to the interests of his fellow class members, and has retained legal counsel competent and experienced in the litigation of class actions.

177. The questions of law and fact common to the class members within the proposed class predominate over any individualized questions. As such, a class action will be a superior method of adjudicating this controversy.

#### **VIII. Causes of Action**

##### **a. FIRST CAUSE OF ACTION AS TO ALL DEFENDANTS: Injunctive Relief (42 U.S.C.A. § 6972)—Cessation of All Activities Contributing to the Contamination of the Groundwater and Surface Water in the Cannon's Campground Community**

178. The Plaintiff incorporates herein the allegations of paragraphs 1 through 175.

179. As established in the paragraphs above, all Defendants are past or present generators, past or present transporters, or past or present owners or operators of a treatment, storage, or disposal facility, who have contributed or who are contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste at or immediately around the Hoechst-Celanese Site in the Cannon's Campground community.

180. The past and present handling, storage, treatment, transportation, and/or disposal of solid and hazardous waste at the Site has resulted in contamination that presents an imminent and substantial endangerment to health of the Cannon's Campground residents and the

environment of the Cannon's Campground community. Paragraphs 132 – 168 more specifically describe the imminent and substantial dangers posed by the contamination.

181. The Resource Conservation and Recovery Act provides citizens with the right to bring a civil action against the Defendants in order to abate and/or remedy continuing and existing hazardous waste contamination that threatens the health of the community or of the environment.

182. Because the Defendants have contributed or are contributing to such contamination, the District Court should temporarily and permanently enjoin the defendants from continuing any such actions pursuant to 42 U.S.C.A. § 6972(a). The District Court should further award the costs of litigation, including reasonable attorneys fees and expert witness fees, to the Plaintiff and the proposed class pursuant to 42 U.S.C.A. § 6972(e).

**b. SECOND CAUSE OF ACTION AS TO ALL DEFENDANTS: Injunctive Relief (42 U.S.C.A. § 6972)—Commencement of a Comprehensive and Diligent Program of Delineation and Remediation of Existing Contamination**

183. The Plaintiff incorporates herein the allegations of paragraphs 1 through 175.

184. As established in the paragraphs above, all Defendants are past or present generators, past or present transporters, or past or present owners or operators of a treatment, storage, or disposal facility, who have contributed or who are contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste at or immediately around the Hoechst-Celanese Site in the Cannon's Campground community.

185. The past and present handling, storage, treatment, transportation, and/or disposal of solid and hazardous waste at the Site has resulted in contamination that presents an imminent and substantial endangerment to health of the Cannon's Campground residents and the

environment of the Cannon's Campground community. Paragraphs 132 – 168 more specifically describe the imminent and substantial dangers posed by the contamination.

186. As described above, the Defendants have consistently failed to establish an adequate delineation of the contaminant plumes in the groundwater beneath the Site and beneath the Cannon's Campground community despite being implored by DHEC to do so since the late 1980s. Concomitantly, Defendants have also failed to implement an adequate groundwater remediation program. This failure to delineate or remedy the existing contamination constitutes an imminent and substantial hazard to the health of the Cannon's Campground community.

187. The Resource Conservation and Recovery Act empowers the District Court to order Defendants to "take such other action as may be necessary." 42 U.S.C.A. § 6972(a). In this instance, because the Defendants have failed to adequately delineate and remedy hazardous waste contamination existing beneath the Site and the Cannon's Campground community, the District Court should issue an affirmative injunction requiring diligent and expeditious delineation and remediation of groundwater existing beneath the Site and beneath the Cannon's Campground community. The District Court should further award the costs of litigation, including reasonable attorneys fees and expert witness fees, to the Plaintiff and the proposed class pursuant to 42 U.S.C.A. § 6972(e).

**c. THIRD CAUSE OF ACTION AS TO ALL DEFENDANTS: Injunctive Relief (42 U.S.C.A. § 6972)—Institution of Community Medical Monitoring**

188. The Plaintiff incorporates herein the allegations of paragraphs 1 through 175.

189. As established in the paragraphs above, all Defendants are past or present generators, past or present transporters, or past or present owners or operators of a treatment, storage, or disposal facility, who have contributed or who are contributing to the past or present

handling, storage, treatment, transportation, or disposal of any solid or hazardous waste at or immediately around the Hoechst-Celanese Site in the Cannon's Campground community.

190. The past and present handling, storage, treatment, transportation, and/or disposal of solid and hazardous waste at the Site has resulted in contamination that presents an imminent and substantial endangerment to health of the Cannon's Campground residents and the environment of the Cannon's Campground community. Paragraphs 132 – 168 more specifically describe the imminent and substantial dangers posed by the contamination.

191. In particular, hazardous waste contamination in the surface water and groundwater of the Cannon's Campground community has exposed the Plaintiff and the hundreds of members of the proposed class to hazardous materials that have the potential to cause serious maladies within the body. As shown above, members of the community have been exposed to dangerous levels of these hazardous materials since at least the 1980s—and likely before that.

192. The Resource Conservation and Recovery Act empowers the District Court to order Defendants to “take such other action as may be necessary.” 42 U.S.C.A. § 6972(a). Because of the long term exposure of the members of the community to numerous hazardous materials due to the actions of the defendants, it is necessary for the Court to establish a court-administered community medical monitoring program through which members of the proposed class may receive periodic health screening for illnesses caused by the hazardous materials identified within this complaint. The District Court should further award the costs of litigation, including reasonable attorneys fees and expert witness fees, to the Plaintiff and the proposed class pursuant to 42 U.S.C.A. § 6972(e).

**d. FOURTH CAUSE OF ACTION AS TO ALL DEFENDANTS: Public Nuisance**

193. The Plaintiff incorporates herein the allegations of paragraphs 1 through 175.

194. In contributing to the pollution in the groundwater and surface water of the Cannon's Campground community, the Defendants have created an unreasonable interference with rights common to the general public.

195. The Defendants' interference with public rights is unreasonable in the following particulars:

- a. Defendants' pollution of the groundwater and surface water of the Cannon's Campground community significantly interferes with public health, safety, and convenience in that the residents of the Cannon's Campground community cannot utilize either the groundwater flowing beneath their property nor the Pacolet River and its streams flowing through their community without a significant risk of exposure to chemical pollution hazardous to human health.
- b. Defendants' above-described pollution of the groundwater and surface water of the Cannon's Campground community is proscribed by both statute and regulation, to wit:
  - i. S.C. Code Ann. § 44-56-130 (Unlawful generation and/or disposal of hazardous waste)
  - ii. S.C. Code Ann. § 48-1-90 (Unlawful discharge of pollution into the environment)
  - iii. 33 U.S.C. § 1311 (Discharge of pollutants in violation of the Clean Water Act)
- c. Defendants' pollution of the groundwater and the surface water of the Cannon's Campground community has produced a long-lasting, detrimental effect on the

community's ability to enjoy these natural resources as shown by the persistent presence of the contaminants in both the groundwater and the surface water.

196. As a result of the pollution committed by the Defendants, the Court should use its powers of equity to enjoin the Defendants from all on-going actions contributing to the pollution of the groundwater and surface water of the Cannon's Campground community. Furthermore, the Court should order specific performance in requiring Defendants to take all actions necessary to adequately monitor the migration of the contamination, to remedy the contamination, and to prevent any further contamination from infringing upon the public rights of the citizens of the Cannon's Campground community.

**e. FIFTH CAUSE OF ACTION AS TO ALL DEFENDANTS: Private Nuisance**

197. The Plaintiff incorporates herein the allegations of paragraphs 1 through 175.

198. In contributing to the pollution in the groundwater and surface water that abuts and flows beneath the individual tracts of land owned by Jay Easler and the class members, the Defendants have created a nuisance per se that is dangerous at all times and in all circumstances to the life, health, and property of Easler and the class members.

199. The Defendants' interference with the private rights of Jay Easler and the class members is unreasonable in the following particulars:

- a. Defendants' pollution of the groundwater and surface water that abuts and flows beneath the individual tracts of land owned by Jay Easler and the class members significantly threatens the health of the class members and their ability to enjoy their property without a significant risk of exposure to chemical pollution hazardous to human health.

b. Defendants' above-described pollution of the groundwater and surface water of the Cannon's Campground community is proscribed by both statute and regulation, to wit:

- i. S.C. Code Ann. § 44-56-130 (Unlawful generation and/or disposal of hazardous waste)
- ii. S.C. Code Ann. § 48-1-90 (Unlawful discharge of pollution into the environment)
- iii. 33 U.S.C. § 1311 (Discharge of pollutants in violation of the Clean Water Act)

200. Defendants' pollution of the groundwater and surface water that abuts and flows beneath the individual tracts of land owned by Jay Easler and the class members has produced a long-lasting, detrimental effect on the class members' ability to enjoy these natural resources as shown by the persistent presence of the contaminants in both the groundwater and the surface water.

201. Also, as a direct and proximate result of the above-described pollution, Jay Easler and the class members have suffered a diminution of the value of their property.

202. Because of these damages suffered at the hands of the Defendants, the Court should use its powers of equity to enjoin the Defendants from all on-going actions contributing to the pollution of the groundwater and surface water that abuts and flows beneath the individual tracts of land owned by Jay Easler and the class members. Jay Easler and the class members are further entitled to compensatory and consequential damages stemming from the diminution of value of their property. Finally, Easler and the class members are entitled to an award of punitive damages sufficient to impress upon the Defendant the seriousness of its actions.

**f. SIXTH CAUSE OF ACTION AS TO ALL DEFENDANTS: Negligence**

203. The Plaintiff incorporates herein the allegations of paragraphs 1 through 175.

204. It was, at all times pertinent to this complaint, foreseeable to the Defendants that the failure to use due care in the usage, handling, storage, and disposal of the hazardous materials described in paragraphs 1 through 175 may result in contamination of groundwater and surface water of the Cannon's Campground community that would result in a threat to the health of the members of the community and damage to the value of property owned by the members of the community. As a result, Defendants possessed a duty in common law to use due care in the usage, handling, storage, and disposal of hazardous wastes.

205. Defendants breached this duty of due care by failing to properly use, handle, store, or dispose of the hazardous materials described in paragraphs 1 through 175. The above-described contamination of groundwater and surface water within the Cannon's Campground community has resulted.

206. Defendants breaches of their duties of due care were reckless, willful and wanton, rising to the level of gross negligence.

207. The Defendants' breaches of their duties of due care have directly and proximately caused damages to Jay Easler and the class members. More specifically, Easler and the class have suffered a diminution of the property value of their property and their homes.

208. As a result of the damages suffered by Easler and the class members, the Plaintiff and the class are entitled to an award of compensatory and consequential damages stemming from the diminution of value of their property and homes. The Plaintiff and the class are also entitled to an award of punitive damages sufficient to impress upon the Defendants the seriousness of their actions.

**IX. Prayer for Relief**

WHEREFORE, having set forth the allegations above, Plaintiff Jay Easler prays for an order granting the following relief:

- i. Certification of the proposed Plaintiff class pursuant to Fed. R. Civ. P. 23(a) and 23(b)(2);
- ii. An order enjoining the Defendants from any continuing activities contributing to the contamination of the groundwater and surface water on and beneath the site and on and beneath the Cannon's Campground community;
- iii. An order granting an affirmative injunctive relief requiring the Defendants to develop and implement an adequate delineation and remediation plan in an expeditious fashion;
- iv. An order granting affirmative injunctive relief requiring the Defendants to establish and fund a court-administered community medical monitoring program;
- v. An order awarding compensatory and consequential damages to Jay Easler and the class members;
- vi. An order awarding punitive damages to Jay Easler and the class members;
- vii. An order awarding court costs, including reasonable attorneys fees and expert fees, to the Plaintiff class and class counsel; and
- viii. An order granting any further relief the Court shall deem necessary.

[SIGNATURE ON NEXT PAGE]

Respectfully submitted,

s/ Richard A. Harpootlian

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